ARTICLES

IMPORTING ENERGY, EXPORTING REGULATION

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This Article identifies and addresses a growing contradiction at the heart of United States energy policy. States are the traditional energy regulators and energy policy innovators—a role that has only grown more important without a settled federal climate policy. Federal regulators and market pressures, however, increasingly demand integrated national and international energy markets. Deregulation, the rise of renewable energy, the shale revolution, and new sources of motor fuel precursors like crude and ethanol have all increased interstate energy trade.

This Article shows how integrated national energy markets are driving states to regulate imported fuel and electricity based on how it was produced elsewhere. That is, states that import energy are now exporting their energy regulations to address production in their trading partners. But exported regulation has its own problems: it threatens to splinter interstate markets, undercutting the federal push for integrated and efficient energy markets, and it violates the U.S. Constitution's dormant Commerce Clause. Indeed, these innovative exported regulations are now caught up in litigation across the country.

This Article argues that, to preserve the state role, while also maintaining a national energy market, Congress should empower the Federal Energy Regulatory Commission to immunize nondiscriminatory state laws from Commerce Clause scrutiny if, and only if, they do not threaten to splinter interstate energy markets. The Article considers how these federal regulators might assess state energy laws in three salient areas: regulation of (1) imported electricity, (2) imported fuel, and (3) energy export and supply chains.

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INTRODUCTION

It is a critical moment for energy policy in the United States. Over the past five years, increased production of both fossil fuels and renewable power, along with increasingly integrated markets in fuels and electricity, have transformed national energy markets and created skyrocketing demand for transport and transmission infrastructure.[1] In the coming months and years, regulators and companies will make decisions that will have a profound effect on the nation's energy system for a generation, which is also the critical window for addressing climate change.[2] The divided federal government has not been able to settle on a response to this challenge which has made the states' traditional role as laboratories of democracy for energy policy increasingly important.[3]

States have responded by adopting renewable power standards, cap-and-trade systems, coal-power phase-outs, and low-carbon fuel standards.[4]

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1. *See infra* Part I.
2. Kelly Levin, *World's Carbon Budget to Be Spent in Three Decades*, WORLD RES. INST. (Sept. 27, 2013), http://www.wri.org/blog/2013/09/world's-carbon-budget-be-spent-three-decades.
3. Jim Rossi, *The Political Economy of Energy and Its Implications for Climate Change Legislation*, 84 TUL. L. REV. 379, 401 (2009).
4. *See* James Coleman, *Unilateral Climate Regulation*, 38 HARV. ENVTL. L. REV. 87, 103 (2014) (state cap-and-trade); Alexandra B. Klass & Elizabeth J. Wilson, *Interstate Transmission Challenges for Renewable Energy: A Federalism Mismatch*, 65 VAND. L.

These climate regulations all respond to increasingly national energy markets by scrutinizing fuel and electricity imported from other states and countries and requiring that these energy products be produced by low-carbon methods even when production occurs elsewhere.[5] That is, states are exporting their regulations to cover production of energy commodities in other states and countries that are part of global energy supply chains.

Climate change gives states a compelling motive to regulate energy production outside of their borders because greenhouse gases emitted during production have the same impact on the climate whether or not they are emitted within the regulating state.[6] If states were only to address in-state energy production, emissions may shift to nonregulating jurisdictions entirely and thus negate the intended climate benefit of the importing state's regulation.[7] Although all environmental and labor regulations could push industries to other states or countries, climate change regulation is unique because there is no benefit to regulating if emissions merely shift elsewhere. A state that loses jobs because it imposes a strict water quality law or on-the-job safety standard at least gains cleaner water or safer workers. A state that loses industry due to climate regulation may be left with nothing. When the industry moves to another state, its greenhouse gas emissions will still have the same effect on the shared climate. Therefore, the fundamental challenge of climate regulation is how to ensure that increased regulation does not merely shift greenhouse gas emitting industries to nonregulating jurisdictions: climate policy and competitiveness policy are necessarily intertwined. Thus, state experimentation with exported regulations is a crucial laboratory for regulators around the world, demonstrating the promise and perils of leveraging subglobal regulation to address an entirely global dilemma.

These exported energy regulations,[8] however, present two serious problems. First, under the U.S. Constitution's dormant Commerce Clause,

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REV. 1801, 1809 (2012) (renewable power standards); *see also* California Low Carbon Fuel Standard, CAL. CODE REGS. tit. 17, § 95480 (2012) (low-carbon fuel standard); Minnesota Next Generation Energy Act, MINN. STAT. § 216H.03 (2011), *invalidated by* North Dakota v. Heydinger, No. 11-CV-3232 SRN/SER, 2014 WL 1612331 (D. Minn. Apr. 18, 2014) (coal phaseout). For more detail, see *infra* notes 66–81 and accompanying text.

5. *See infra* Part II.

6. NAT'L RESEARCH COUNCIL, CLIMATE CHANGE SCIENCE: AN ANALYSIS OF SOME KEY QUESTIONS 10–11 (2001).

7. *See* Coleman, *supra* note 4, at 106–07 (describing how this phenomenon, known as "leakage," undercuts incentives to regulate in other countries); *see also* Robert N. Stavins, *Policy Instruments for Climate Change: How Can National Governments Address a Global Problem?*, 1997 U. CHI. LEGAL F. 293, 317–19 (describing modes of leakage).

8. Exported regulations must not be confused with traditional environmental regulations that apply to in-state emissions but indirectly motivate action through the "California effect" in which out-of-state manufacturers upgrade their entire production line to the more efficient models demanded by one state's regulation. DAVID VOGEL, TRADING UP: CONSUMER AND ENVIRONMENTAL REGULATION IN THE GLOBAL ECONOMY 248 (1995) (using the term "California effect" to describe how California's regulatory innovation has spread to other states through national trade). The paradigmatic example of this effect is California automobile efficiency standards that drove manufacturers across the country and the world to manufacture more efficient vehicles. *Id.*; *see also* Anu Bradford, *The Brussels Effect*, 107 NW. U. L. REV. 1, 29–30 (2013) (describing spread of EU measures on hazardous

states may not tax or restrict imports based on how they were created in other states,[9] even if failing to do so will undercut state regulation.[10] So exported regulations are unconstitutional under a conventional dormant Commerce Clause analysis. As a result, many of these regulations are currently embroiled in lawsuits around the country.[11] Second, these regulations threaten to break up emerging national and international energy markets, undoing federal policies designed to integrate domestic energy markets.[12] Splintered markets would forgo the efficiency benefits promised by integrated markets, squandering the opportunity to provide consumers with lower, less volatile energy prices.[13]

This Article argues that these problems can be mitigated—and exported state energy regulation can be reconciled with emerging interstate energy markets—if Congress authorizes the Federal Energy Regulatory Commission (FERC) to supervise state laws that regulate interstate energy transactions. The dormant Commerce Clause is merely an inference from congressional silence, so federal regulators may immunize state regulations from dormant Commerce Clause scrutiny.[14] Finally, federal energy regulators have expertise that would help them judge whether state energy regulation would endanger integrated energy markets.[15] Thus, FERC is well positioned to authorize or preempt state regulation of out-of-state energy production.

This Article proceeds in four parts. Part I describes the increasing integration of markets for electricity, fossil fuels, and motor fuels. Part II

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waste); Richard B. Stewart et al., *Building Blocks for Global Climate Protection*, 32 STAN. ENVTL. L.J. 341, 378–80 (2013) (giving these effects the name "dominant actor strategies"). But those regulations applied to the characteristics of the product sold within California, not the process by which it was made. By contrast, exported energy regulations do not apply to any characteristic of gasoline or electricity—those commodities are identical no matter how they are produced; instead the regulations prescribe how electricity and gasoline may be produced. *See infra* notes 83, 98 and accompanying text.

9. C & A Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383, 393 (1994) ("States and localities may not attach restrictions to . . . imports in order to control commerce in other States."); Healy v. Beer Inst., 491 U.S. 324, 336 (1989) (stating that regulation is forbidden by the dormant Commerce Clause if "the practical effect of the regulation is to control conduct beyond the boundaries of the State").

10. Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 522 (1935); *see also C & A Carbone*, 511 U.S. at 393 (finding that states may not "extend [their] police power beyond its jurisdictional bounds"). *See generally* Douglas Kysar & Bernadette A. Meyler, *Like a Nation State*, 55 UCLA L. REV. 1621 (2008); Joseph Allan MacDougald, *Why Climate Law Must Be Federal: The Clash Between Commerce Clause Jurisprudence and State Greenhouse Gas Trading Systems*, 40 CONN. L. REV. 1431 (2008).

11. *See infra* Part III.A.

12. *See infra* Part III.B.

13. *See* Andrew R. Butters & Daniel F. Spulber, *The Evolution of the Market for Wholesale Power* 4, 9 (Northwestern Univ. Sch. of Law Searle Ctr., Working Paper) (using volatility as a proxy for grid isolation and explaining that "competition among retail electricity suppliers helped to reduce markups over the cost of purchased electric power by improving marketing efficiencies and lowering margins"), *available at* http://www.law.northwestern.edu/research-faculty/searlecenter/events/energy/documents/Butters_Spulber_energy.pdf.

14. Quill Corp. v. North Dakota, 504 U.S. 298, 309 (1992).

15. *See infra* Part III.C.

explores the state response: exported regulation that takes on energy extraction and production in other states and countries. Part III makes the case for modifying the existing dormant Commerce Clause regime that controls exported regulation and argues that agency review is a more comprehensive and workable solution to the problem of exported state regulation. Part IV concludes by briefly exploring how federal regulators could address three important categories of exported energy regulation: state regulation of imported electricity, state regulation of imported fuel, and state regulation of energy export and supply chains.

I. IMPORTING ENERGY: EXPANDING NATIONAL AND INTERNATIONAL ELECTRICITY AND FUEL MARKETS

From the Roman Empire's coal trade to ships circling the globe in search of whale oil, there has always been a global trade in energy. But for many years, most energy was produced, distributed, and consumed on a relatively local scale.[16] Electricity was produced and distributed by vertically integrated monopolies that were usually limited to a single state, or even a single metro area. A single utility operated the power plants that produced electricity, the transmission lines that relayed that electricity to population centers, and the distribution lines that brought it to individual consumers.[17] Electricity sources were often local as well: coal power was predominantly near coal-producing regions like Appalachia and Illinois,[18] population centers near mountains were often served by hydroelectricity,[19] and oil and natural gas power was more common in areas where those resources were plentiful.[20] Power sources for heating were often local as well.[21] Even

16. *See* Klass & Wilson, *supra* note 4, at 1805.

17. *Id.* at 1806 ("Until recently, most of the industry remained vertically integrated: most utilities owned large, centralized generation facilities, transmission lines, and distribution lines and covered an exclusive service territory, delivering electricity to customers for sales.").

18. U.S. ENERGY INFO. ADMIN., FUEL COMPETITION IN POWER GENERATION AND ELASTICITIES OF SUBSTITUTION (2012), http://www.eia.gov/analysis/studies/fuelelasticities/pdf/eia-fuelelasticities.pdf (showing that coal makes up the bulk of fuel purchases in the two regions nearest the Appalachia and the Illinois Coal Basin, which are controlled by the Midwest Reliability Organization and the ReliabilityFirst Corporation); *Electrical Power*, HANDBOOK OF TEX. ONLINE (June 10, 2010), http://www.tshaonline.org/handbook/online/articles/dpe01 (providing a historical overview of electrical power in Texas). These patterns persist but are being altered by increased transportation and new fuel sources. *See infra* notes 36–49 and accompanying text.

19. DOUGLAS HALL, IDAHO NAT'L LAB., A STUDY OF UNITED STATES HYDROELECTRIC PLANT OWNERSHIP 6 (June 2006), http://www1.eere.energy.gov/water/pdfs/doewater-11519.pdf (showing greatest hydroelectric capacity in California, Oregon, and Washington).

20. *See* CAL. ENERGY COMM'N, 2005 ENVIRONMENTAL PERFORMANCE REPORT OF CALIFORNIA'S ELECTRICAL GENERATION SYSTEM 25 (2005), http://www.energy.ca.gov/2005publications/CEC-700-2005-016/CEC-700-2005-016.PDF ("Oil-fired power plant development began in the late 1930s and peaked in the 1950s."); U.S. Energy Info. Admin., *Alaska State Profile and Energy Estimates*, http://www.eia.gov/state/analysis.cfm?sid=AK (last updated June 19, 2014) (Alaska, as a natural gas and oil producer, relies primarily on electricity generated by natural gas and diesel); U.S. Energy Info. Admin., *Texas State Profile and Energy Estimates*, http://www.eia.gov/state/analysis.cfm?sid=TX (Dec. 18,

crude oil, perhaps the archetypal global commodity, was often produced in state.[22]

Over the past decades each of these energy markets has been radically transformed by new production and transport technologies, resulting in geographically expanded markets that crisscross jurisdictional boundaries. The transition has been perhaps most dramatic in electricity markets, where deregulation and the rise of renewable energy sources far from population centers have created an increasingly prevalent national electricity market.[23] In 1978, Congress and the states began restructuring these markets by encouraging or requiring vertically integrated utilities to purchase power from certain non-utilities that operated hydroelectric facilities or could produce electricity as a byproduct of other industrial activities—so-called "co-generation" facilities.[24] In the 1990s, FERC began a more dramatic overhaul of the monopoly model, requiring utilities to "wheel"—i.e., transmit—power for all electricity producers.[25] Transmission and distribution remained monopolies because of the difficulty of setting up parallel competing electric grids, but FERC believed that if these transmission monopolies charged independent power producers fair rates to deliver power to consumers, then all independent generators could compete with established utilities in an open market for electricity generation.[26]

2013) (Texas, the nation's largest natural gas producer, relies mostly on electricity from natural gas).

21. JOHN BARTECK, JR., NATURAL RESOURCE, AGRIC. & ENG'G SERV., HEATING WITH WOOD AND COAL 1 (2003) (describing transitions from local wood as a heating source to coal delivered by rail and then, at the middle of the twentieth century, to oil and gas using new distribution systems).

22. For example, as recently as 1994, more than half of the crude oil refined for use in California came from California. MARGARET SHERIDAN, CAL. ENERGY COMM'N, CALIFORNIA CRUDE OIL PRODUCTION AND IMPORTS 1–2 (2006), http://www.energy.ca.gov/2006publications/CEC-600-2006-006/CEC-600-2006-006.PDF. By 2005, California's share of California crude had dropped to 37 percent. *Id.*

23. *See* Butters & Spulber, *supra* note 13, at 2 (using electricity pricing data to "conclude that a national market for wholesale electric power is emerging"); *see also* Richard J. Pierce, Jr., *Completing the Process of Restructuring the Electricity Market*, 40 WAKE FOREST L. REV. 451, 468–69 (2005) (describing progress to date in integrating regional energy markets); David B. Spence, *Can Law Manage Competitive Energy Markets*, 93 CORNELL L. REV. 765, 772–76 (2008) (describing development of competitive regional markets in both electricity and natural gas).

24. Public Utility Regulatory Policy Act of 1978, Pub. L. No. 95-617, 92 Stat. 3117; Bernard S. Black & Richard J. Pierce, *The Choice Between Markets and Central Planning in Regulating the U.S. Electricity Market*, 93 COLUM. L. REV. 1339, 1347–48, 1354–89 (1993) (describing state regulation in California and the Northeast that required utilities to purchase power from these non-utilities at above-market rates). Cogeneration facilities can produce power relatively cheaply as a byproduct of other industrial processes. U.S. Energy Info. Admin., *Today in Energy: Combined Heat and Power Technology Fills an Important Energy Niche* (Oct. 4, 2012), http://www.eia.gov/todayinenergy/detail.cfm?id=8250.

25. Pierce, *supra* note 23, at 468–79 (describing progress of restructuring, which is assessed as "Near Complete Success in the Mid-Atlantic Region," "Partial Success in New England, New York, and Texas," and "Failure in California" and "The Rest of the Country").

26. *Id.* at 464–66.

FERC's restructuring plans met with only mixed success and many areas of the country remain dependent on traditional vertically integrated utilities for electricity. Nevertheless, there has been a gradual trend toward competitive generation markets, which has resulted in more geographically integrated power networks.[27] First, some regions have developed integrated, competitive power generation markets, such as the mid-Atlantic region, the Northeast corridor, and the Midwest.[28] Second, as a result of federal and state policies there has been a large increase in the use of wind power,[29] which often requires interstate transmission because suitable high-wind sites are often located far from principal areas of electricity demand such as cities and manufacturing centers.[30] Third, FERC has put pressure on all states—whether restructured or traditionally regulated—to develop regionally integrated transmission plans through Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs).[31] As a result, most of the country—excluding the Southeast and the Mountain West—is now incorporated into one of seven RTOs and ISOs.[32] Additionally, FERC is working to expand nationally integrated transmission by pushing neighboring RTOs and ISOs to cooperate,[33] and demanding that states consider the electricity needs of neighboring states when they respond to transmissions proposals.[34] The net result of these efforts is an emerging integrated national electricity market.[35]

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27. *See* Shmuel Oren et al., *Alternative Business Models for Transmission Investment and Operation*, *in* DEPARTMENT OF ENERGY, NATIONAL TRANSMISSION GRID STUDY C-9 (2002) (describing FERC policy that "widespread interconnection and direct access to the transmission network will expand the scope of the market and foster market efficiency").

28. The same is true, to a limited extent, of California. Pierce, *supra* note 23, at 471–77.

29. In 2012 more wind power capacity was installed than any other power type, including booming fossil fuel sources such as natural gas. U.S. Dep't of Energy, *Energy Department Reports: U.S. Wind Energy Production and Manufacturing Reaches Record Highs*, ENERGY.GOV (Aug. 6, 2013, 8:00 AM), http://energy.gov/articles/energy-dept-reports-us-wind-energy-production-and-manufacturing-reaches-record-highs ("In 2012, wind energy became the number one source of new U.S. electricity generation capacity for the first time—representing 43 percent of all new electric additions.").

30. Nat'l Renewable Energy Lab., *Wind Resources and Transmission Lines*, NREL.GOV, http://www.nrel.gov/electricity/transmission/images/home_usmap.jpg (last visited Nov. 26, 2014). The greatest average wind speeds are concentrated in the less-populated plains states. *See* U.S. Dep't of Energy, *United States: Land-Based and Offshore Annual Average Wind Speed at 100 m*, ENERGY.GOV, http://www1.eere.energy.gov/wind/images/wind_speed_map_lg.jpg (last visited Nov. 26, 2014).

31. Hari M. Osofsky & Hannah J. Wiseman, *Dynamic Energy Federalism*, 72 MD. L. REV. 773, 804 & n.128 (2013); *see also* Richard J. Pierce, Jr., *Why FERC Must Mandate Efficiently Structured Regional ISOs—Now!*, 12 ELEC. J. 49 (1999).

32. U.S. Energy Info. Admin., *Today in Energy: About 60 percent of the U.S. Electric Power Supply Is Managed By RTOs*, EIA.GOV (Apr. 4, 2011), http://www.eia.gov/todayinenergy/detail.cfm?id=790.

33. FERC, Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842, 49,846 (Aug. 11, 2011) (codified at 18 C.F.R. 35).

34. *Id.* at 49,871.

35. Denise L. Desautels, *Who Should Regulate the Siting of Electric Transmission Lines Anyway? A Jurisdictional Study*, 18 ELEC. J. 11, 12 (2005) ("The restructuring of the electric industry and subsequent break-up of vertically integrated monopolies created regional and even national wholesale power markets."); *see also* Spence, *supra* note 23, 772–75

Fossil fuel markets also have been shaken up by new transport and production techniques that have combined to displace traditional regional fuels, and enable export of fuels to distant markets. Wellhead natural gas prices in the United States rose dramatically from 2002 to 2008, peaking at $10.79 per thousand cubic feet in July 2008.[36] Since then, widespread use of horizontal drilling and hydraulic fracturing of shale gas formations, commonly referred to as "fracking," has unlocked vast new reserves of natural gas across the continent, pushing wellhead natural gas prices as low as $1.89 per thousand cubic feet in May 2012.[37] This shale gas revolution has also dramatically expanded the nation's proven natural gas reserves, suggesting that natural gas will be plentiful for many years to come.[38] As a result, natural gas power plants have become viable in areas of the country that previously primarily relied on coal or other power sources.[39]

This dramatic swing in natural gas prices has led to significant regional and global price disparities, which has motivated an increasing national and international trade in natural gas by land and sea.[40] During the decade of peaking natural gas prices, the United States added over 20,000 miles of natural gas pipelines to connect expanding sources of natural gas

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(describing development of competitive regional markets in both electricity and natural gas). Indeed, energy markets are increasingly international. *See* Osofsky & Wiseman, *supra* note 31, at 780 n.22, 802–803, 811 (2013) (noting that the North American Electric Reliability Corporation "writes and implements standards intended to guarantee the provision of a constant and adequate supply of electricity in the United States and several Canadian provinces").

36. U.S. Energy Info. Admin., *U.S. Natural Gas Wellhead Price*, EIA.GOV, http://www.eia.gov/dnav/ng/hist/n9190us3m.htm (last visited Nov. 26, 2014).

37. *Id.*

38. Proven natural gas reserves nearly doubled from 1999 to 2011. U.S. Energy Info. Admin., *U.S. Crude Oil and Natural Gas Proved Reserves*, EIA.GOV, www.eia.gov/naturalgas/crudeoilreserves (last visited Nov. 26, 2014). Although there has been serious debate on how long these reserves, standing alone, will last, they certainly increase the likelihood of natural gas abundance for the coming decades. Chris Nelder, *What the Frack?: Is There Really 100 Years' Worth of Natural Gas Beneath the United States?*, SLATE (Dec. 29, 2011), http://www.slate.com/articles/health_and_science/future_tense/2011/12/is_there_really_100_years_worth_of_natural_gas_beneath_the_united_states_.html.

39. Richard J. Pierce, Jr., *Natural Gas Fracking Addresses* All *of Our Major Problems*, 4 GEO. WASH. J. ENERGY & ENVTL. L. 22, 23 (2013); COMPETITION IN POWER GENERATION AND ELASTICITIES OF SUBSTITUTION, *supra* note 18, at 4 ("The trend of natural gas displacing coal was especially evident in the southeastern United States between 2008 and 2009."); U.S. Energy Info. Admin., *Today in Energy: Ohio's Fuel Mix for Power Generation Is Changing*, EIA.GOV, http://www.eia.gov/todayinenergy/detail.cfm?id=5030 (last visited Nov. 26, 2014) (showing increasing use of natural gas in Ohio's electricity mix); Ken Silverstein, *Coal-Dependent States Get Second Chance with Shale Gas Boom*, FORBES (Nov. 14, 2013, 7:40 AM), http://www.forbes.com/sites/kensilverstein/2013/11/14/coal-dependent-states-get-second-chance-with-shale-gas-boom (describing transition in West Virginia); Trevor Houser et al., *State Contributions to Recent US Emissions Trends*, RHODIUM GRP. (Oct. 28, 2013), http://rhg.com/notes/state-by-state-contributions-to-recent-us-emissions-trends (showing gas displacing coal in Texas, Ohio, Georgia, Indiana, and Alabama).

40. U.S. ENERGY INFO. ADMIN., EFFECT OF INCREASED NATURAL GAS EXPORTS ON DOMESTIC ENERGY MARKETS 3 (2012), http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf; James Coleman, *The Shale 'Revolution' Is About Gas Prices and Oil Production*, ENERGY COLLECTIVE (July 17, 2014), http://theenergycollective.com/energylawprof/432466/shale-revolution-about-gas-prices-oil-production.

production with natural gas demand.[41] Although there is less data available for recent years, it seems that this building boom has continued: in 2011, 2400 miles of pipeline were added, much of it in regions with significant fracking activity, such as Texas and the Northeast.[42] There is every likelihood that the pace of pipeline building will continue: in 2013 and 2014, increasing reliance on natural gas for both electricity and heating created pipeline bottlenecks and price spikes across the country.[43]

A booming international trade in liquefied natural gas (LNG) has also emerged. If it cannot be moved by pipeline, natural gas generally must be liquefied (and therefore condensed) by cooling before it can be transported overseas. This is an expensive process, but improved technology and natural gas price disparities have enabled a booming trade in LNG—since 1981, the global LNG trade has doubled every eight years.[44]

In the decade of high gas prices, U.S. importers sought to build several new LNG import facilities.[45] Now with shale gas driving U.S. prices below $3 per million British thermal units, and Asian shale gas prices over $15,[46] investors have submitted several applications to the Department of Energy for new LNG export facilities that could ship to Asia.[47] The Department of

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41. *See* U.S. ENERGY INFO. ADMIN., MAJOR CHANGES IN NATURAL GAS TRANSPORTATION CAPACITY 1998–2008 2 (2008), *available at* http://www.eia.gov/oil_gas/fwd/ngpipelinetc.html (last visited Nov. 26, 2014) ("More than 20,000 miles of new natural gas transmission pipeline, representing more than 97 billion cubic feet per day of capacity, were placed in service in the United States over the past 10 years. . . . Much of that growth was driven by the need to: access new supply sources such as: imports from Canada[;] expanding production from new natural gas fields."). Like natural gas prices, the pipeline boom spiked in 2008 with 3893 miles of new pipeline in that year alone. U.S. ENERGY INFO. ADMIN., EXPANSION OF THE U.S. NATURAL GAS PIPELINE NETWORK: ADDITIONS IN 2008 AND PROJECTS THROUGH 2011 (2009), http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2009/pipelinenetwork/pipelinenetwork.pdf.

42. U.S. Energy Info. Admin., *Natural Gas Year-in-Review (With Data for 2011)*, EIA.GOV, http://www.eia.gov/naturalgas/review/archive/2011 (last visited Nov. 26, 2014).

43. *See* Clifford Krauss, *Natural Gas Prices Soar As Mercury Plummets*, N.Y. TIMES, Jan. 25, 2014, at B3; *see also* U.S. Energy Info. Admin., *Today in Energy: December Natural Gas Prices Spike in Boston*, EIA.GOV (Dec. 6, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=14071.

44. Knut Einar Rosendahl & Eirik Lund Sagen, *The Global Natural Gas Market: Will Transport Cost Reductions Lead to Lower Prices?*, 30 ENERGY J. 17, 17 (2009) (noting that "[o]ver the last decade the costs of LNG have been significantly reduced, more producers have entered the gas market in general and the LNG market in particular, and the trade between continents has increased"); INT'L GAS UNION, WORLD LNG REPORT 2011, at 7 fig.1 (2011), http://www.igu.org/sites/default/files/node-page-field_file/LNG%20Report%202011.pdf.

45. Clifford Krauss, *Exports of American Natural Gas May Fall Short of High Hopes*, N.Y. TIMES, Jan. 5, 2013, at B1.

46. ERNST & YOUNG, GLOBAL LNG, WILL NEW DEMAND AND NEW SUPPLY MEAN NEW PRICING? 13 fig.4 (2013), http://www.ey.com/Publication/vwLUAssets/Global_LNG_New_pricing_ahead/$FILE/Global_LNG_New_pricing_ahead_DW0240.pdf.

47. EFFECT OF INCREASED NATURAL GAS EXPORTS ON DOMESTIC ENERGY MARKETS, *supra* note 40, at 3 ("Unlike the oil market, current natural gas markets are not integrated globally. In today's markets, natural gas prices span a range from $0.75 per million British thermal units (MMBtu) in Saudi Arabia to $4 per MMBtu in the United States and $16 per MMBtu in Asian markets that rely on LNG imports. Prices in European markets, which reflect a mix of spot prices and contract prices with some indexation to oil, fall between U.S

Energy has approved seven of these projects and is reviewing twenty-four more.[48] Until global prices converge, global LNG transport will continue to increase.[49]

The abundance of cheap natural gas has also resulted in surplus coal that now is being exported across the country, and to new markets abroad.[50] In the second quarter of 2009, the United States exported only 13 million short tons of coal; in the second quarter of 2013, it exported 29.5 million short tons.[51]

The increased international trade in fossil fuels for power production has been matched by an increasingly diverse interstate trade in unconventional sources of motor fuel precursors such as oil sands, non-corn ethanol,[52] and oil from shale formations.[53] For many years, most of the oil in the United States came from conventional oil production in the United States, Canada, or the Middle East.[54] In recent years, several new sources of motor fuel have come to the fore. In 2003, Canada's vast oil sands resources—which consist of oil mixed with sand and clay—were declared "economically recoverable," due to improved extraction techniques and high oil prices,[55] and since then U.S. imports of Canadian crude have gradually increased from 2072 barrels per day in 2003 to 3142 barrels per day in 2013.[56] Furthermore, in the last five years, unconventional fracking techniques have unlocked large volumes of domestic oil from shale in the Bakken formation

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and Asian prices. Spot market prices at the U.K. National Balancing Point averaged $9.21 per MMBtu during November 2011.").

48. *See* U.S. DEP'T OF ENERGY, SUMMARY OF LNG EXPORT APPLICATIONS, http://energy.gov/sites/prod/files/2013/08/f2/Summary_of_Export_Applications.pdf.

49. Global demand for North American natural gas seems likely to increase as air quality concerns limit coal-fired power and regulators demand power that, like natural gas, can easily ramp up and down to complement intermittent power sources like wind and solar. JOEL DARMSTADTER, RESOURCES FOR THE FUTURE, THE CONTROVERSY OVER US COAL AND NATURAL GAS EXPORTS 2–3 (2013), http://www.rff.org/RFF/Documents/RFF-IB-13-01.pdf (explaining how low North American natural gas prices have led to exports to Asia, where coal is still competitive with gas).

50. *Id.*

51. U.S. ENERGY INFO. ADMIN., QUARTERLY COAL REPORT tbl.4 (2014), http://www.eia.gov/coal/production/quarterly/pdf/t4p01p1.pdf (providing monthly data on U.S. coal exports and imports from 2008 to 2014).

52. U.S. ENERGY INFO. ADMIN., ANNUAL ENERGY OUTLOOK 2012 WITH PROJECTIONS TO 2035, at 24 (2012) [hereinafter ANNUAL ENERGY OUTLOOK 2012] ("Bitumen production in Canada and biofuels production mostly from the United States and Brazil are the most important components of the world's incremental supply of other liquids from 2010 to 2035 in the Reference case.").

53. This oil is known as "tight oil" and its production in the Bakken formation of North Dakota has transformed domestic crude markets. *Id.* at 2 ("Key results highlighted in *AEO2012* include continued modest growth in demand for energy over the next 25 years and increased domestic crude oil and natural gas production, largely driven by rising production from tight oil and shale resources.").

54. NEELESH NERURKAR, CONG. RESEARCH SERV., R 41765, U.S. OIL IMPORTS: CONTEXT AND CONSIDERATIONS 4–5 (2011), https://www.fas.org/sgp/crs/misc/R41765.pdf.

55. U.S. ENERGY INFO. ADMIN., CANADA REPORT 3 (2014), http://www.eia.gov/countries/analysisbriefs/Canada/canada.pdf.

56. U.S. Energy Info. Admin., *U.S. Imports from Canada of Crude Oil and Petroleum Products*, EIA.GOV, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=MTTIMUSCA2&f=A (last visited Nov. 26, 2014).

in North Dakota and the Barnett and Eagle Ford formations in Texas.[57] Finally, in the 2007 Renewable Fuel Standard, Congress mandated a massive expansion in biofuel consumption—asking the EPA to write regulations that force refiners to sell increasing volumes of biofuels, eventually reaching 36 billion gallons a year in 2022.[58] Although the law mandates consumption of large volumes of conventional ethanol, it also requires use of a variety of other advanced biofuels, which in practice requires growing imports of sugarcane ethanol from Brazil.[59]

Thus, energy has gone from a model where fuel was purchased from a limited number of sources and then electricity was consumed and produced locally, to a model where both fuel and electricity are shipped in rapidly evolving national and international markets.

II. EXPORTING REGULATION: REGULATING ENERGY PRODUCTION AND CONSUMPTION IN OTHER STATES AND COUNTRIES

Although there are important federal energy regulations, the fifty states remain the focus of energy regulation and the most important energy policy innovators. The states implement federal pollution control standards that govern areas such as fossil fuel extraction, refining, and power production.[60] They supplement these standards with their own policies that also affect each stage of energy extraction and production.[61] They regulate electricity prices and reliability and often prescribe the appropriate mix of

57. ANNUAL ENERGY OUTLOOK 2012, *supra* note 52, at 43 ("The increased variety and regional availability of certain crude types has created new market dynamics and pricing relationships that are difficult to capture using existing methods, especially considering the rapid emergence of 'tight oil' production, which, to date, has been substantially different in quality from the crude oil previously expected to be available to U.S. refineries. For example, light sweet crude oil sourced from the Bakken shale formation in North Dakota has been sold to refiners on the Gulf Coast in recent years at a substantial discount relative to heavier imported crudes, because of limitations in the delivery infrastructure.").

58. 42 U.S.C. § 7545(o)(1)(B)(i)(1) (2012); ANNUAL ENERGY OUTLOOK 2012, *supra* note 52, at 24 ("Bitumen production in Canada and biofuels production mostly from the United States and Brazil are the most important components of the world's incremental supply of other liquids from 2010 to 2035 in the Reference case.").

59. BRENT D. YACOBUCCI, CONG. RESEARCH SERV., RS 22870, WAIVER AUTHORITY UNDER THE RENEWABLE FUEL STANDARD (RFS) 4 & 6 n.29 (2014), http://nationalaglawcenter.org/wp-content/uploads/assets/crs/RS22870.pdf; RANDY SCHNEPF & BRENT D. YACOBUCCI, CONG. RESEARCH SERV., R 40155, RENEWABLE FUEL STANDARD (RFS): OVERVIEW AND ISSUES 4 & n.10, 7, 23–26 (2013), http://www.fas.org/sgp/crs/misc/R40155.pdf.

60. *See* Robert L. Fischman, *Cooperative Federalism and Natural Resources Law*, 14 N.Y.U. ENVTL. L.J. 179, 188–89 (2005).

61. For example, states have taken the lead in regulating extraction processes like natural gas fracking. *See* JACQUELYN PLESS, NATURAL GAS DEVELOPMENT AND HYDRAULIC FRACTURING: A POLICYMAKER'S GUIDE 1–4 (2012), www.ncsl.org/documents/energy/frackingguide_060512.pdf (noting that "[a]lthough a number of federal regulations govern the hydraulic fracturing process, states have regulatory primacy on this issue," and that "[a]t least 119 bills in 19 states have been introduced this session that address hydraulic fracturing").

power sources.[62] They control siting of infrastructure for electricity transmission and transportation of liquid and solid fuels.[63]

The states' role as "laboratories of democracy" for energy policy[64] has grown increasingly prominent over the past decade because the federal government has been unable to settle on a national energy policy.[65] States have adopted innovative policies that read like a menu of proposals to transform energy markets—renewable power standards,[66] cap-and-trade systems,[67] utility rate decoupling,[68] coal-power phaseouts,[69] renewable

62. Osofsky & Wiseman, *supra* note 31, at 802–03, 806 (describing state role in regulating mix of power sources and retail energy prices and conditions).

63. Steven J. Eagle, *Securing a Reliable Electricity Grid: A New Era in Transmission Siting Regulation?*, 73 TENN. L. REV. 1, 4 (2005) ("[S]tates have most of the regulatory authority in the electricity industry."); *see also* Pierce, *supra* note 23, at 466.

64. *See* FERC v. Mississippi, 456 U.S. 742, 788–89 (1982) (O'Connor, J., concurring in part and dissenting in part) ("States serve as laboratories for the development of new social, economic, and political ideas. This state innovation is no judicial myth. . . . Utility regulation itself is a field marked by valuable state invention."); Fed. Power Comm'n v. E. Ohio Gas Co., 338 U.S. 464, 489 (1950) (Jackson, J., dissenting) ("Long before the Federal Government could be stirred to regulate utilities, courageous states took the initiative and almost the whole body of utility practice has resulted from their experiences."); *see also* David E. Adelman & Kirsten H. Engel, *Adaptive Federalism: The Case Against Reallocating Environmental Regulatory Authority*, 92 MINN. L. REV. 1796 (2008); William W. Buzbee, *Interaction's Promise: Preemption Policy Shifts, Risk Regulation, and Experimentalism Lessons*, 57 EMORY L.J. 145, 154, 157 (2007); Bradley C. Karkkainen, *Collaborative Ecosystem Governance: Scale, Complexity, and Dynamism*, 21 VA. ENVTL. L.J. 189 (2002).

65. Rossi, *supra* note 3, at 401 ("[S]tate and local governments have taken a particularly aggressive approach to addressing climate change, in many instances beating federal regulators and Congress to the punch."); *see* Klass & Wilson, *supra* note 4, at 1809 ("In the absence of comprehensive federal policies to reduce greenhouse gas emissions and with few federal policies to require renewable energy development, states have taken an active role in developing their own policies to promote renewable energy."); Vivian E. Thomson & Vicki Arroyo, *Upside-Down Cooperative Federalism: Climate Change Policymaking and the States*, 29 VA. ENVTL. L.J. 1 (2011).

66. Renewable power standards require that a certain percentage of electricity generation come from sources that are designated "renewable," such as solar power and wind power. Roger Martella et al., *North American and Global Integration of Carbon Control Markets*, *in* 2 THE LAW OF CLIMATE CHANGE IN CANADA 19-7 (Dennis Mahony ed., 2d ed. 2012). Over half of the states now have these standards. U.S. Energy Info. Admin., *Today in Energy: Most States Have Renewable Portfolio Standards*, EIA.GOV, http://www.eia.gov/todayinenergy/detail.cfm?id=4850 (last visited Nov. 26, 2014) (stating that "30 States and the District of Columbia had enforceable RPS or other mandated renewable capacity policies, as of January 2012").

67. California as well as a group of East Coast states have adopted cap-and-trade systems to control greenhouse gas emissions. Coleman, *supra* note 4, at 115 n.115, 125–26. In cap-and-trade systems, polluters must have a permit for each ton of pollution that they emit, and they can purchase these permits from other companies or from the government, but the government limits the number of permits, placing an overall cap on emissions. *Id.* at 91 & nn.8–9.

68. Ten states have decoupled utility compensation from energy consumption with the intent of encouraging energy conservation. NAT'L ASS'N OF REG. UTILS. COMM'RS, DECOUPLING FOR ELECTRIC & GAS UTILITIES: FREQUENTLY ASKED QUESTIONS 6 (2007), http://www.epa.gov/statelocalclimate/documents/pdf/supp_mat_decoupling_elec_gas_utilities.pdf. Traditionally, price-regulated electric and natural-gas utilities are paid per unit of energy that they deliver, which means utilities benefit if they can encourage their customers

energy subsidies,[70] and low-carbon fuel standards.[71] State regulation of energy has never been more important.[72]

But state regulation is being forced to adapt to rapidly integrating national markets in energy commodities like fuel and electricity. As energy markets have grown too large for a single state to encompass, state regulators have responded by asserting broader authority, regulating in-state transactions with the aim of influencing extraction and consumption of fuel in other states, and thus exporting their energy policy to other states.

A. *Restrictions on Electricity Import*

The most prominent targets of exported state regulations are the sources of imported electricity. As noted, if states simply ignored the sources of the electricity that they import, imported energy could make their innovative energy policies futile as a response to climate change. Thus, states are addressing out-of-state power sources through cap-and-trade systems, renewable portfolio standards, and coal-power moratoriums.

California recently adopted a cap-and-trade system for greenhouse gas emissions.[73] Under this system, California utilities must purchase a permit for each ton of greenhouse gases that they emit when they produce

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to use energy extravagantly. *Id.* at 2–3. Decoupling removes this incentive by adjusting payments to utilities so that they do not directly depend on energy use. *Id.*

69. In 2007 the state of Minnesota placed a moratorium on construction of coal-fired power plants. MINN. STAT. § 216H.03, subdiv. 3(2) (2011).

70. Nearly every state has some kind of financial incentive for renewable energy, whether implemented through grants, loans, or personal or corporate taxes. S. GOUCHOE ET AL., CASE STUDIES ON THE EFFECTIVENESS OF STATE FINANCIAL INCENTIVES FOR RENEWABLE ENERGY 7–16 (2002), http://www.nrel.gov/docs/fy02osti/32819.pdf.

71. California Low Carbon Fuel Standard, CAL. CODE REGS. tit. 17, §§ 95480–95490 (2012). A low carbon fuel standard, unlike most fuel standards, does not merely regulate emissions from burning fuel. Instead, it regulates all greenhouse gas emissions associated with fuel production, including emissions in extracting and refining the fuel as well as other emissions indirectly caused by fuel production. Thus, California's low carbon fuel standard regulates the "life-cycle emissions" of fuel used in California, which means:

> [T]he aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the Executive Officer, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all greenhouse gases are adjusted to account for their relative global warming potential.

Id. § 95480.1(a)(38); *see also id.* §§ 95480–95490.

72. *See, e.g.*, Ann E. Carlson, *Iterative Federalism and Climate Change*, 103 NW. U. L. REV. 1097 (2009) (arguing for states' potential for innovative climate change regulation); Thomas W. Merrill, *Four Questions About Fracking*, 63 CASE W. RES. L. REV. 971, 978–81 (2013) (arguing in favor of fracking and suggesting that states should be the locus of fracking regulation because of states' potential for innovative regulation); *see also* Uma Outka, *Environmental Law and Fossil Fuels: Barriers to Renewable Energy*, 65 VAND. L. REV. 1679, 1693 (2012) (noting that most policy progress on renewable energy has been limited to the "the state and local level").

73. California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms, CAL. CODE REGS. tit. 17, §§ 95800–96023 (2012).

electricity.[74] But California imports electricity from other states in the Southwest and Pacific Northwest.[75] If California ignored the greenhouse gases produced in these other states, imported electricity would have a significant advantage over California electricity—it would be cheaper because out-of-state producers would not need to purchase permits for their greenhouse gas emissions. As a result, California's cap-and-trade system would be undercut—greenhouse gas emissions would shift to other states as industrial consumers switched to cheaper electricity and out-of-state power plants ramped up production.[76] These out-of-state greenhouse gas emissions would be just as bad for California as in-state emissions because the effects of global warming do not depend on where the emissions occur.[77] And net greenhouse gas emissions might actually increase as power production shifted to states that do not limit emissions.[78] Even worse, these states would become an increasingly powerful interest group against state or federal climate legislation that could undercut their competitive advantage by subjecting their emissions to comparable controls.[79] As a result, California has decreed that it will regulate out-of-state greenhouse gas emissions in the same manner as in-state emissions: electricity importers must purchase permits for emissions associated with their electricity no matter where those emissions occur.[80]

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74. *Id.* § 95800(b)(1) (defining "covered entities to include 'First Deliverers of Electricity'" including "Electricity generating facilities: the operator of an electricity generating facility located in California").

75. Cal. Energy Comm'n, *California's Major Sources of Energy*, CA.GOV (2011), http://energyalmanac.ca.gov/overview/energy_sources.html (California imports 21 percent of its electricity from southwestern states like Arizona and Nevada and 8 percent from Pacific Northwest states like Oregon).

76. *See supra* note 7 and accompanying text.

77. NAT'L RESEARCH COUNCIL, *supra* note 6, at 10–11.

78. *Cf.* Glen P. Peters et al., *Growth in Emission Transfers via International Trade from 1990 to 2008*, 108 PROC. NAT'L ACAD. SCI. 8903, 8904 (2011) (finding that greenhouse gas emissions leaked from E.U. countries to developed nations outweigh all reductions contemplated for the European Union under the Kyoto Protocol); *see also* Jonathan Baert Wiener, *Global Environmental Regulation: Instrument Choice in Legal Context*, 108 YALE L.J. 677, 695 (1999) (noting that estimates of likely leakage from the E.U. range "from 4% to more than 100% of the emissions abatement achieved initially").

79. *See* Rachel Brewster, *Stepping Stone or Stumbling Block: Incrementalism and National Climate Change Legislation*, 28 YALE L. & POL'Y REV. 245, 286–87 (2010); Wiener, *supra* note 78, at 696 (describing this dynamic); *see also* Coleman, *supra* note 4, at 25 ("If leakage is sufficiently large, unilateral regulation may be worse than nothing; it will increase emissions in other countries and harden resistance to greenhouse gas limits in the very countries where they are increasingly emitted.").

80. CAL. CODE REGS. tit. 17, § 95800(b)(1) (2012) (defining "covered entities" to include "electricity importers"). Electricity importers are responsible for submitting permits to cover all of their out-of-state emissions. *Id.* § 95852(b) (requiring permits for all emissions "from a source in California or in a jurisdiction where a GHG emissions trading system has not been approved for linkage;" to date, no neighboring jurisdiction has been approved for linkage). California has also faced difficulty accounting for the "source" of electricity imports because electricity is drawn from an undifferentiated pool. It may be attributed to a single source as a matter of accounting, but it is, in fact, derived from all generation connected to the grid. *See* James Coleman, *Federal Court Strikes Down Minnesota's Limits on Coal Power Imports: A Critical Moment for State Regulation of Imported Fuel & Electricity*, ENERGY COLLECTIVE (Apr. 24, 2014), http://theenergycollective.com/

Minnesota faced a similar dilemma in 2007, when it placed a moratorium on construction of coal-fired power plants as part of climate legislation.[81] To ensure that this did not simply push new coal generation outside the state borders, the state banned import of electricity produced by new coal-fired power plants.[82] This restriction on electricity from new out-of-state coal power plants is not based on any characteristic of the electricity that is imported—the electricity itself is the same whether the electricity comes from an old coal plant, a new coal plant, a natural gas plant, or any other

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energylawprof/371881/federal-court-strikes-down-minnesota-s-limits-coal-power-imports-critical-momen (explaining that "the interstate electric grid" is "a pool of power" making it impossible to trace the source of electricity). Thus, California utilities are increasingly trading contracts that purport to come "from" coal plants to contracts that purport to come from low-carbon sources. Danny Cullenward, *How California's Carbon Market Actually Works*, BULL. ATOM. SCI. (Aug. 12, 2014), http://bos.sagepub.com/content/early/2014/08/09/0096340214546834. Notably, another cap-and-trade system, the Regional Greenhouse Gas Initiative, a cap-and-trade scheme designed by ten eastern states to stabilize and then slightly lower greenhouse gas emissions, does not apply to imported electricity. *Coleman*, *supra* note 4, at 58. This cap, however, has been very lax, limiting the danger of emissions leakage. JONATHAN L. RAMSEUR, CONG. RESEARCH SERV., R 41836, THE REGIONAL GREENHOUSE GAS INITIATIVE: LESSONS LEARNED AND ISSUES FOR POLICYMAKERS 8–9 (2013), https://www.fas.org/sgp/crs/misc/R41836.pdf. The participating states, however, are now lowering the cap; depending on the result of this change, they may end up considering ways of preventing leakage in the future. *Id.*

81. MINN. STAT. § 216H.03 (2011). In 2011, Minnesota's Governor vetoed repeal of this moratorium. Eric Roper, *Dayton Vetoes 'Cheeseburger Bill,'* STAR TRIB. (May 27, 2011), http://www.startribune.com/politics/statelocal/122757954.html. In the same year, the Canadian province of Ontario went even further, phasing out existing coal-fired power plants. Cessation of Coal Use—Atikokan, Lambton, Nanticoke and Thunder Bay Generating Stations, O. Reg. 496/07 (Can.), http://www.e-laws.gov.on.ca/html/regs/english/elaws_regs_070496_e.htm# (closing out coal-power plants by 2015).

82. MINN. STAT. § 216H.03, subdiv. 3(2) (providing that no person shall "import or commit to import from outside the state power from a new large energy facility that would contribute to statewide power sector carbon dioxide emissions"). "Statewide power sector carbon dioxide emissions" are defined to include both "emissions of carbon dioxide from the generation of electricity within the state and all emissions of carbon dioxide from the generation of electricity imported from outside the state." *Id.* subdiv. 2. The ban however contained an exception for electricity imports if the new out-of-state coal facility offset its emissions by funding or committing to greenhouse gas reductions elsewhere to the satisfaction of Minnesota's Public Utilities Commission. *Id.* subdiv. 4; *id.* § 216H.03(n). California adopted a similar policy that forbids electricity providers from entering into long-term contracts with new coal-fired power plants whether they are inside or outside the state. CAL. PUB. UTIL. CODE § 8341(a), (b)(1), (d)(1) (2008) ("No load-serving entity or local publicly owned electric utility may enter into a long-term financial commitment unless any baseload generation supplied under the long-term financial commitment complies with the greenhouse gases emission performance standard established by the commission" which must be set at "a rate of emissions of greenhouse gases that is no higher than the rate of emissions of greenhouse gases for combined-cycle natural gas baseload generation."). Maine and Washington also passed coal-fired moratoriums, but these only applied to new in-state sources. ME. REV. STAT. ANN. tit. 38, § 585-K(3) (2009) ("Between the effective date of this subsection and the earlier of the effective date of rules authorized pursuant to subsection 2 and August 1, 2011, the department may not issue any license or permit to a coal gasification facility that is not licensed under this chapter prior to August 1, 2008."); Greenhouse Gas Emissions Performance Standards, WASH. REV. CODE § 80.80.040(3)(b) (2011) ("All baseload electric generation that commences operation after June 30, 2008, and is located in Washington, must comply with the greenhouse gases emissions performance standard established in subsection (1) of this section.").

type of power source.[83] Instead, the restriction addresses out-of-state emissions.[84]

Perhaps the most common type of exported energy regulation is accomplished through renewable portfolio standards—thirty-nine states now employ these standards.[85] Renewable power standards require utilities to purchase a specified percentage of electricity generation from sources that are designated "renewable," such as solar power and wind power.[86] Crucially, these standards do not require that in-state electricity *producers* generate a specified percentage of energy from renewable sources. Instead, they require that electricity *providers* purchase a specified percentage of energy from renewable sources, which extends the renewable requirement to all sources that sell to the regulating state, even if they are located outside of the state.[87] Of course, states could alter these standards so that they only apply to in-state power production, but so far they have not taken that route.[88]

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83. Electricity is drawn from a national grid that pools power from numerous plants, so the notion that electricity comes "from" a particular plant is an accounting convention rather than a description of an observable physical phenomenon. *See* Samuel R. Brumberg, *Getting the Camel Out of the Tent: Behind the Federal Energy Regulatory Commission's Rise to Power and the Importance of States' Continued Regulatory Oversight*, 30 WM. & MARY ENVTL. L. & POL'Y REV. 691, 697–98 (2006) (comparing accounting for electricity sources to a person in the United States paying a person in Spain for a cup of water with the water added to the Atlantic Ocean on one side and withdrawn on the other); Steve Ferrey, *Sustainable Energy, Environmental Policy, and States' Rights: Discerning the Energy Future Through the Eye of the Dormant Commerce Clause*, 12 N.Y.U. ENVTL. L.J. 507, 602 (2004) ("As a matter of basic physics, an electron is an electron."). Of course, different power sources may produce different power profiles; for example, solar and wind energy do not produce a constant amount of power since they depend on variable sunshine and wind. The point, however, is that if a utility contracts to receive power with a given profile, it does not matter how that electricity is generated as long as it meets the profile.

84. Although there are also moratoria on other types of plants such as nuclear, those moratoria only apply to in-state construction. Nat'l Conference of State Legislatures, *State Restrictions on New Nuclear Power Facility Construction*, NESH.ORG (Dec. 2010), http://www.ncsl.org/issues-research/env-res/states-restrictions-on-new-nuclear-power-facility.aspx.

85. Steven Ferrey, *Threading the Constitutional Needle with Care: The Commerce Clause Threat to the New Infrastructure of Renewable Power*, 7 TEX. J. OIL, GAS & ENERGY L. 59, 109–23 (2012); Daniel K. Lee & Timothy P. Duane, *Putting the Dormant Commerce Clause Back to Sleep: Adapting the Doctrine to Support State Renewable Portfolio Standards*, 43 ENVTL. L. 295 (2013).

86. Klass & Wilson, *supra* note 4, at 1809; *see also* Patrick R. Jacobi, Note, *Renewable Portfolio Standard Generator Applicability Requirements: How States Can Stop Worrying and Learn to Love the Dormant Commerce Clause*, 30 VT. L. REV. 1079, 1080–81, 1090 (2006).

87. *See, e.g.*, WIS. STAT. § 196.378(2)(a)(2)(d) (2012) ("[F]or the year 2015, each electric provider shall increase its renewable energy percentage so that it is at least 6 percentage points above the electric provider's baseline renewable percentage."); MD. CODE ANN., PUB. UTIL. COS. § 7-703(d) (West 2012) ("[A]n electricity supplier shall meet the renewable energy portfolio standard by accumulating the equivalent amount of renewable energy credits that equal the percentages required under this section.").

88. They could also alter them to take better advantage of the market-participant exception to the dormant Commerce Clause, which allows states to favor in-state industry when purchasing goods or services for their own use. Ferrey, *supra* note 85, at 103–05. *See*

The states' decision to regulate electricity based on its source, rather than simply regulating in-state electricity production, places them in a bind under the dormant Commerce Clause. A renewable power standard operates by demanding compliance credits from utilities and providing compliance credits to utilities that provide power from renewable sources.[89] This leaves states with three choices. First, they can credit all out-of-state electricity as renewable but, as described above, that will quickly undermine the standard. Second, they can refuse to credit all out-of-state electricity, but that would be discriminatory, violating the dormant Commerce Clause.[90] Third, they can apply their own renewable power standard to out-of-state electricity, which also jeopardizes the regulation under the dormant Commerce Clause.[91] States have generally chosen a mix of the second and third course, either refusing to credit out-of-state electricity or applying their regulation to the sources of that electricity in other states.[92]

B. Restrictions on Fuel Imports

States also have adopted regulations that control fuel production even if it occurs in other states or countries. California, again, has been an earlier experimenter with addressing out-of-state emissions. In 2010, California adopted a "low carbon fuel standard."[93] The term is somewhat misleading: these standards do not limit the amount of carbon that fuel may contain; instead, they control the total amount of greenhouse gases that are emitted as a result of production, transport, and finally combustion of the fuels that are eventually retailed in California.[94] That is, these standards attempt to measure and control the greenhouse gases that are emitted when (1) oil is extracted from the ground or when corn is grown for ethanol, (2) these feedstocks are transported to refiners, (3) refiners turn these products into fuel, (4) this fuel is transported to market, and (5) these fuels are burned in motor vehicles.[95] They also attempt to account for any greenhouse gases

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generally Dan T. Coenen, *State User Fees and the Dormant Commerce Clause*, 50 VAND. L. REV. 795 (1997) (describing scope of the exception).

89. *See supra* note 87 and accompanying text.

90. *See* Quill Corp. v. North Dakota, 504 U.S. 298, 312 (1992); Dan Farber, *Regulators Between a Rock and a Hard Place: The Extraterritorial Dilemma*, LEGAL PLANET (June 24, 2013), http://legal-planet.org/2013/06/24/regulators-between-a-rock-and-a-hard-place-the-extraterritorial-dilemma.

91. *See infra* Part III.A; Farber, *supra* note 90.

92. Ferrey, *supra* note 85, at 109–23.

93. Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1079–80 (E.D. Cal. 2011).

94. CAL. CODE REGS. tit. 17, §§ 95480–95490 (2012).

95. The standard regulates carbon intensity, which is defined as the "life-cycle emissions" of fuel used in California, which means "the aggregate quantity of greenhouse gas emissions (including direct emissions and significant indirect emissions such as significant emissions from land use changes), as determined by the Executive Officer, related to the full fuel lifecycle, including all stages of fuel and feedstock production and distribution, from feedstock generation or extraction through the distribution and delivery and use of the finished fuel to the ultimate consumer, where the mass values for all

emitted when (6) farmers around the world use more land for growing biofuel feedstocks like corn rather than food or when (7) resulting food shortages encourage others to shift undeveloped land into farms.[96] California's standard seeks to lower the sum total of all of these emissions, which, in aggregate, is known as the "carbon intensity" of a fuel.[97]

Thus, carbon intensity is not an inherent quality of the finished product that is sold in state—two chemically identical gallons of ethanol or gasoline could have drastically different carbon intensities depending on how they were produced and transported across the globe.[98] Instead, California's low-carbon fuel standard is designed to address global fuel supply chains to "reduc[e] the carbon intensity of transportation fuels used in California by an average of 10 percent by the year 2020."[99] Other states are considering following suit: Oregon and Washington are contemplating similar standards,[100] and there have been efforts to adopt these standards in the group of eight northeast states known as the Northeast States for Coordinated Air Use Management.[101]

C. Restrictions on Fuel Exports

Energy exporters are also exporting regulation. As a combined result of pollution regulations and the natural gas boom, many utilities are using more natural gas and less coal, because gas has grown cheaper and produces less pollution.[102] But U.S. coal producers have found new markets for their product: increasingly they are exporting coal to Asia and

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greenhouse gases are adjusted to account for their relative global warming potential." *Id.* §§ 95480.1(a)(38); *see also id.* §§ 95480–95490.

96. *Id.* §§ 95480–95490.

97. *Id.*

98. CAL. AIR RES. BD., INITIAL STATEMENT OF REASONS V-30 (2009) ("[A] gallon of ethanol made from corn grown and processed in the Midwest will, under a microscope or other analytical device, look identical in every material way to a gallon of ethanol processed from sugar cane grown in Brazil. Both samples of ethanol will have the same boiling point, the same molecular composition, the same lower and upper limits of flammability—in other words, both will have identical physical and chemical properties because both products consist of 100% ethanol. On the other hand, the corn ethanol from the Midwest will have different carbon intensity than the sugar cane ethanol from Brazil.").

99. *Id.* at ES-6 (describing Executive Order S-01-07).

100. Scott Learn, *Oregon's Low-Carbon Fuel Standard Faces Legislative, Legal Hurdles*, OREGONIAN (Apr. 19, 2012), http://www.oregonlive.com/environment/index.ssf/2012/04/oregons_low-carbon_fuel_standa.html; STATE OF WASH. DEP'T OF ECOL., A LOW CARBON FUEL STANDARD IN WASHINGTON: INFORMING THE DECISION (2011), www.ecy.wa.gov/climatechange/docs/fuelstandards_finalreport_02182011.pdf.

101. NE. STATES FOR COORDINATED AIR USE MGMT., FINAL RESULTS: ECONOMIC ANALYSIS OF THE NORTHEAST/MID-ATLANTIC (NE/MA) CLEAN FUELS STANDARD (Sept. 2011), http://www.nescaum.org/documents/cfs-econ-for-stakeholder-mtgs-sep-2011.pdf/. At one time a low-carbon fuel standard was also considered by the six states (and one Canadian province) that joined the now-defunct Midwest Greenhouse Gas Reduction Accord. *See* Midwestern Greenhouse Gas Accord, Midwestern Energy Security & Climate Stewardship Summit, Nov. 15, 2007.

102. F. Pratson, Drew Haerer & Dalia Patiño-Echeverri, *Fuel Prices, Emission Standards, and Generation Costs for Coal Versus Natural Gas Power Plants*, 47 ENVTL. SCI. & TECH. 4926, 4926 (2013).

Europe where high natural gas prices are encouraging coal power.[103] These exports present state energy regulators with a similarly perplexing problem: if state anti-coal regulations merely result in coal being burned elsewhere, they will not effectively address greenhouse gas emissions due to coal burning.[104] Those emissions will have the same climate impact regardless of whether the coal is burned in the United States or across the globe in European and Asian countries importing U.S. coal.[105]

As a result, state regulators have begun scrutinizing fuel exports as well. Proposals for new coal export facilities in the Pacific Northwest have been a particular flashpoint for conflicts regarding the effect of coal exports. Two large coal export facilities are being planned to receive coal by rail from the Powder River Basin in Wyoming and Montana so that it can be shipped to Asia: the Millennium Bulk Logistics Longview Terminal in Longview, Washington and the Gateway Pacific Terminal at Cherry Point near Ferndale, Washington.[106] The U.S. Army Corps of Engineers, which is responsible for considering the environmental impact of these facilities, and ultimately approving their construction, has said that its analysis will not consider the "burning of coal overseas" because those events are "outside the Corps' control and responsibility."[107] The State of Washington, on the other hand, has declared that its analysis of the Longview Terminal *will* consider greenhouse gas emissions from "end-use coal combustion" because those emissions "contribute to climate change which in turn can

103. U.S. Energy Info. Admin., *Today in Energy: Multiple Factors Push Western Europe to Use Less Natural Gas and More Coal*, EIA.GOV (Sept. 27, 2013), http://www.eia.gov/todayinenergy/detail.cfm?id=13151; Thomas K. Grose, *As U.S. Cleans Its Energy Mix, It Ships Coal Problems Abroad*, NAT'L GEOGRAPHIC NEWS (Mar. 15, 2013), http://news.nationalgeographic.com/news/energy/2013/03/130315-us-coal-exports.

104. Thus they may entirely fail to serve their purpose in combating global environmental problems like climate change. In contrast, local pollutants will decrease if the coal is burned elsewhere, but even that may be problematic to the extent that a local regulator is concerned about local pollution in other parts of the globe. *See supra* notes 6–7 and accompanying text.

105. Even conventional pollutants such as particulate matter are increasingly reaching the United States from their sources across the Pacific Ocean. M. Huang et al., *Impacts of Transported Background Pollutants on Summertime Western US Air Quality: Model Evaluation, Sensitivity Analysis and Data Assimilation*, 13 ATMOSPHERIC CHEMISTRY & PHYSICS 359 (2013).

106. *U.S. Energy Abundance: Regulatory, Market and Legal Barriers to Export: Hearing Before H. Comm. on Energy & Commerce*, 133 Cong. (2013) (statement of Jennifer A. Moyer, Acting Chief, Regulatory Program, U.S. Army Corps of Eng'rs) [hereinafter *U.S. Energy Abundance*]. At one point there were also plans for exports from new facilities in Grays Harbor, Washington, and Coos Bay and St. Helens Bay, Oregon, but these plans have now been shelved. Associated Press, *Company Shelves Hoquian Coal-Export Flow*, SEATTLE TIMES (Aug. 14, 2012), http://www.seattletimes.com/html/localnews/2018917971_coalexport15.html; Scott Learn, *Port of Coos Bay Coal-Export Proposal Ends After 18 Months of Work*, OREGONIAN (Apr. 1, 2013), http://www.oregonlive.com/environment/index.ssf/2013/04/port_of_coos_bay_coal-export_p.html; Kim Murphy, *Plans Shelved for Coal Export Terminal in Oregon*, LA TIMES (May 8, 2013), http://articles.latimes.com/2013/may/08/nation/la-na-nn-coal-export-oregon-20130508.

107. *U.S. Energy Abundance*, *supra* note 106, at 5.

affect snow pack levels, ocean acidification and wildfire season in Washington."[108]

The same issues have arisen in consideration of liquefied natural gas exports from northwestern states. Again, the federal government has shown little interest in considering the impact of burning natural gas overseas (or assessing emissions due to increased extraction of natural gas).[109] FERC has exclusive authority to approve or deny siting, construction, and operation of liquefied natural gas facilities.[110] Nevertheless, state governments have pushed for a larger role in federal approvals.[111] Environmental groups have urged federal and state regulators to leverage these permitting decisions to assess the combustion of exported natural gas in the overseas destinations that these facilities will serve.[112]

The oil trade also has faced increased challenges from environmental groups concerned about the consequences of oil extraction in North America and oil consumption in U.S. trading partners. In November 2013, an ordinance nearly passed in South Portland, Maine that would have banned any increased oil storage or transport because there were rumors that a pipeline leading from Montreal to South Portland would soon be carrying heavy crude from Canada for export overseas.[113] A month after

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108. Millennium Bulk Terminals-Longview Environmental Impact Statements, Frequently Asked Questions, State Environmental Policy Act Environmental Impact Statement, http://www.millenniumbulkeiswa.gov/frequently-asked-questions.html. Washington, however, warns: "The analysis does NOT include evaluating environmental impacts within any country importing the coal." *Id.*

109. *See, e.g.*, FERC, SABINE PASS LIQUEFACTION PROJECT MODIFICATION, ENVIRONMENTAL ASSESSMENT 66–67 (Apr. 2013); FERC, ENVIRONMENTAL ASSESSMENT FOR THE SABINE PASS LIQUEFACTION PROJECT 2-99 to 2-100 (Dec. 2011), http://energy.gov/sites/prod/files/EA-1845-FEA-2011.pdf. FERC's most recent environmental assessment, covering the Cove Bay LNG facility in Oregon also declined to perform a detailed study of the impact of LNG exports on global greenhouse gas emissions. FERC, ENVIRONMENTAL ASSESSMENT FOR THE COVE POINT LIQUEFACTION PROJECT 173–75 (May 2014), http://www.ferc.gov/industries/gas/enviro/eis/2014/05-15-14-ea/ea.pdf. It did, however, highlight the environmental benefits that foreign countries would receive from burning natural gas instead of coal or oil. *Id.* at 175. The Department of Energy also put out a policy paper on the general impact of LNG, which emphasized its potential climate benefits by comparing natural gas to coal rather than to alternative energy sources such as nuclear, hydropower, or wind power. TIMOTHY J. SKONE ET AL., U.S. DEP'T OF ENERGY, LIFE CYCLE GREENHOUSE GAS PERSPECTIVE ON EXPORTING LIQUEFIED NATURAL GAS FROM THE UNITED STATES (2014), http://energy.gov/sites/prod/files/2014/05/f16/Life%20Cycle%20GHG%20Perspective%20Report.pdf.

110. 15 U.S.C. § 717b(e)(1) (2012) (as amended by the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005)) ("The Commission shall have the exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal.").

111. *See* Motion to Intervene by the Oregon Department of Energy, LNG Development Co. v. Oregon Pipeline Co., L.L.C., Nos. CP09-6, CP09-6-001 (FERC July 11, 2013).

112. *See, e.g.*, Sierra Club, *Petition to the Federal Energy Regulatory Commission, State of Oregon, and State of Washington*, http://action.sierraclub.org/site/PageNavigator/LNG_Petition.html (last visited Nov. 26, 2014).

113. *See Waterfront Protection Ordinance* (2013), http://www.southportland.org/files/6713/7666/1956/1g_Actual_WPO_from_the_Citizens_Petition.pdf; Whit Richardson, *South Portland Narrowly Rejects Attempt to Ban 'Tar Sands Oil' from Waterfront*, BANGOR DAILY NEWS (Nov. 5, 2013), http://bangordailynews.com/2013/11/05

the ordinance was rejected, the city council placed a moratorium on exports of oil sands crude.[114] And the Pacific Northwest has seen controversies about proposed oil exports as well. A lease for a major terminal capable of transferring 360,000 barrels of oil per day from rail to ships and barges was approved in the Port of Vancouver, Washington over the objection of environmental groups.[115] Three other terminals proposed for Gray's Harbor, Washington received development permits from local authorities, but these permits were overturned by the Washington Shorelines Hearings Board, which ruled that the authorities had failed to consider the combined impact of all three terminals.[116] The Port of Vancouver lease also has been challenged in court by environmental groups claiming that crude oil exported from the facility will exacerbate climate change when it is burned.[117]

D. Restrictions on Cross-State Shipments of Energy Goods and Equipment

Given increasing efforts to address fossil fuel extraction and combustion indirectly through scrutiny of imports and exports, it may not be surprising that regulators and activists are looking further up and down supply chains to find more chokepoints that could slow the fossil fuel industry. As a result, transstate shipments of fossil fuels and even fossil fuel extraction equipment have faced increased scrutiny in states across the country. This increased scrutiny for fossil fuel transport has been accompanied by efforts to encourage states to support transmission of renewable power to support renewable industries in other states.

Minnesota legislators, working with the climate action group MN350, recently proposed a bill that would place a fee on every gallon of oil that moved through the state either by rail or pipeline.[118] The stated purpose of the bill is to fund emergency preparedness for crude-by-rail accidents, but the fee would apply to any mode of transportation, and MN350 has been clear that its ultimate goal is to shut down development of the oil sands in

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/politics/preliminary-vote-totals-show-south-portland-rejecting-attempt-to-ban-tar-sands-oil-from-waterfront. The moratorium has since been transformed into a permanent ban. Kelley Bouchard, *South Portland Approves Law Barring Tar Sands Oil*, PORTLAND PRESS HERALD (July 22, 2014), http://www.pressherald.com/2014/07/22/south-portland-set-for-final-vote-on-tar-sands-ban.

114. Whit Richardson, *South Portland Council Approves Moratorium on Tar Sands*, BANGOR DAILY NEWS (Dec. 17, 2013), http://bangordailynews.com/2013/12/17/politics/south-portland-council-passes-tar-sands-moratorium.

115. Scott Learn, *Port of Vancouver Approves Big Crude Oil Terminal Amid Safety Concerns*, OREGONIAN (July 25, 2013), http://www.oregonlive.com/environment/index.ssf/2013/07/port_of_vancouver_approves_big.html.

116. Quinault Indian Nation v. City of Hoquiam, No. 13-012c, 2013 WL 6062377 (Wash. Shore Hearing Bd. Dec. 9, 2013) (order on summary judgment).

117. Complaint, Columbia Riverkeeper v. Port of Vancouver (Clark Cnty. Ct. Oct. 2, 2013), *available at* http://columbiariverkeeper.org/wp-content/uploads/2013/10/Complaint-Riverkeeper-v-Port-of-Vanc.pdf.

118. David Shaffer, *Minnesota Legislators Push for Better Oil-Transport Disaster Response*, STAR TRIB. (Feb. 12, 2014), http://www.startribune.com/business/245279801.html.

Canada.[119] This effort builds upon a long history of attacking transport of fossil fuels to slow extraction and combustion of coal, oil, and gas.[120] In the summer of 2013, Sierra Club and several other environmental organizations supplemented their legal attack on coal export facilities with a lawsuit against the railroad carrying coal through eastern Washington.[121] The suit alleged that coal dust from the trains was polluting federal waters in violation of the Clean Water Act.[122] Environmental groups are looking to push even further up supply chains, suing to prevent shipments of equipment to the oil industry—known as "megaloads"—that travel on U.S. highways on their way to the oil sands in Canada.[123]

Interstate electricity markets are also forcing state regulators to consider the impact of their decisions on emissions in other states. Public utility commissions that must approve transmission lines now routinely consider the impact of transmission on electricity production in other states.[124] For example, a transmission line from in-state windmills to out-of-state consumers could also provide those consumers with cleaner air if it displaced local coal power.[125] FERC now requires states to consider the energy policies of other states in their transmission siting decisions.[126]

III. THE CASE FOR LIMITED FEDERAL AUTHORIZATION AND PREEMPTION OF STATE EXPORTED REGULATIONS

State exported regulations are an understandable outgrowth of state leadership in energy regulation overlaid upon increasingly integrated energy

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119. Grace Kelly, *Danger of Oil Spills in Minnesota*, MINN. PROGRESSIVE PROJECT (July 16, 2013), http://mnprogressiveproject.com/30605 (arguing that pipelines should be rejected because "Canadian oil sands crudes" carried by them are "more greenhouse gas intensive" than average and it was "told by climate scientists that full development of tar sands oil will mean 'Game Over' for the climate").

120. *See, e.g.*, Mid States Coal. for Progress v. Surface Transp. Bd., 345 F.3d 520 (8th Cir. 2003) (holding environmental impact statement on new rail line inadequate for failure to consider the increased use of coal that the line would enable).

121. Sierra Club v. BNSF Ry. Co., No. 1:13-cv-00272-LRS, 2014 WL 53309 (E.D. Wash. Jan. 2, 2014).

122. *Id.*

123. Nez Perce Tribe v. U.S. Forest Serv., No. 3:13-CV-348-BLW, 2013 WL 5592765 (D. Idaho Oct. 10, 2013). On the flip side, they have also pushed further downstream to regulate petroleum coke storage, which is a byproduct of refining oil sands crude. Tina Sfondeles, *Rahm Emanuel to Propose Ordinance Prohibiting New Petcoke Facilities*, CHI. SUN TIMES (Mar. 13, 2014, 6:44 AM), http://www.suntimes.com/news/metro/25532779-418/rahm-emanuel-to-propose-ordinance-prohibiting-new-petcoke-facilities.html.

124. Conversely, states making decisions about siting power generation facilities must consider likely transmission decisions in other states. *See* Outka, *supra* note 72, at 1692 n.45; Amy L. Stein, *The Tipping Point of Federalism*, 45 CONN. L. REV. 217, 245–46 (2012) (exploring disparity between electricity generation siting which nominally remains in state control and siting regimes governing electricity and natural gas transmission); *see also* Tara Benedetti, *Running Roughshod? Extending Federal Siting Authority Over Interstate Electric Transmission Lines*, 47 HARV. J. ON LEGIS. 253, 253 (2010) ("While states have historically controlled the siting of interstate electric transmission lines, many federal legislators and regulators believe stronger federal authority over siting is necessary.").

125. Stein, *supra* note 124, at 247–48.

126. Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842, 49,846 (Aug. 11, 2011) (codified at 18 C.F.R. 35).

markets. But they are inconsistent with conventional dormant Commerce Clause jurisprudence and present serious challenges for integrated national energy markets. As a result, state regulations have been bogged down in dormant Commerce Clause challenges around the country. The regulations present practical problems as well: they present opportunities for state protectionism, threaten to undermine the federal government's push for integrated national energy markets, and present courts with technical questions that are difficult to resolve under traditional modes of review. To preserve both the benefit of state leadership in energy and climate policy and the achievement of integrated national energy markets, the federal government should authorize a limited subset of state exported regulations. Specifically, Congress should empower FERC to authorize state exported regulations so long as they do not discriminate against the out-of-state energy industry or splinter interstate energy markets.

A. Problem One: Dormant Commerce Clause Litigation

Many of the flagship state energy policies have been cast into doubt by lawsuits alleging violations of the dormant Commerce Clause. Minnesota's coal-power phaseout was challenged by North Dakota and was struck down by a Minnesota federal district court.[127] California's low-carbon fuel standard was first struck down by a federal district court in California,[128] then reinstated by the Ninth Circuit Court of Appeals.[129] Complaints have also been filed against renewable power standards in Colorado, Delaware, Missouri, and Ohio.[130] And neither the case law nor legal scholarship provides a strong basis for defending these lawsuits under current dormant Commerce Clause doctrine.

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127. North Dakota v. Heydinger, No. 11-cv-3232 (SRN/SER), 2014 WL 1612331, at *21–22 (D. Minn. Apr. 18, 2014) (holding that Minnesota's import restriction necessarily regulated out-of-state conduct, violating the dormant Commerce Clause, because electricity on the grid "does not recognize state boundaries").

128. Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1078–79 (E.D. Cal. 2011), *rev'd*, 730 F.3d 1070 (9th Cir. 2013). In full disclosure, I represented some of the plaintiffs in this case until August 2011 when I left private practice. I have had no involvement in the case since that time.

129. Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070, 1107 (9th Cir. 2013). The decision made no reference to the protectionist motives that California used to explain its own regulation, see *infra* notes 175–83 and accompanying text, and explained its decision with a separate section arguing that "California should be encouraged to continue and to expand its efforts to find a workable solution to lower carbon emissions." *Corey*, 730 F.3d at 1106–07. Seven circuit judges dissented from the denial of rehearing in the case. Rocky Mountain Farmers Union v. Corey, 740 F.3d 507, 512 (9th Cir. 2014).

130. *See* Order Denying Plaintiffs' Early Motion for Summary Judgment and Granting Defendants and Intervenor-Defendants' Early Motion for Summary Judgment, Energy & Envt. Legal Inst. v. Epel, No. 1:11-cv-00859-WJM-BNB (D. Colo. May 9, 2014) (dismissing dormant commerce clause claims); Brief for Appellant, *In re* Application of Champaign Wind L.L.C., No. 2013-1874 (Ohio Feb. 3, 2014); *see also* Nichols v. Markell, No. 12-777-CJB, 2014 WL 1509780 (D. Del. Apr. 17, 2014) (allowing dormant Commerce Clause claims to proceed); Missouri *ex rel.* Mo. Energy Dev. Ass'n v. Pub. Serv. Comm'n, 386 S.W.3d 165 (Mo. Ct. App. 2012); Ferrey, *supra* note 85, at 69, 106–07.

The dormant Commerce Clause is the "negative implication" of Congress's Article I, Section 8 authority "[t]o regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes."[131] It disables states from regulating commerce in three ways. First, states may not impose burdens on interstate commerce that are "clearly excessive" in comparison to their legitimate local benefits; this is a balancing test known as the *Pike* test.[132] Second, states may not discriminate between in-state and out-of-state commercial interests.[133] Third, states may not regulate with the aim "to control conduct beyond the boundaries of the State."[134] The *Pike* test does not present an existential threat to state energy regulation: so long as states do not discriminate or regulate out-of-state activity, courts will afford their calculation of benefits and burdens wide latitude.[135] The other two prohibitions—forbidding discrimination and extraterritoriality—are far more problematic.

The discrimination test will have a significant impact on state energy regulation. In pursuit of "green jobs" twenty-three of the nation's thirty-nine state renewable power standards discriminate between in-state energy and out-of-state energy.[136] These discriminatory standards are unlikely to survive dormant Commerce Clause review.[137] Although lawsuits against

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131. U.S. CONST. art. 1, § 8, cl. 3.

132. Pike v. Bruce Church, Inc., 397 U.S. 137, 142 (1970) ("Where the statute regulates evenhandedly to effectuate a legitimate local public interest, and its effects on interstate commerce are only incidental, it will be upheld unless the burden imposed on such commerce is clearly excessive in relation to the putative local benefits.").

133. New Energy Co. of Ind. v. Limbach, 486 U.S. 269, 273–74 (1988) ("This 'negative' aspect of the Commerce Clause prohibits economic protectionism—that is, regulatory measures designed to benefit in-state economic interests by burdening out-of-state competitors.").

134. *See* Healy v. Beer Inst., 491 U.S. 324, 336 (1989). Under this doctrine, "the Commerce Clause . . . precludes the application of a state statute to commerce that takes place wholly outside of the State's borders, whether or not the commerce has effects within the State." (quoting Edgar v. MITE Corp., 457 U.S. 624, 642–43 (1982)); *see also* C & A Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383, 393 (1994) ("States and localities may not attach restrictions to exports or imports in order to control commerce in other States.").

135. United Haulers Ass'n, Inc. v. Oneida-Herkimer Solid Waste Mgmt. Auth., 550 U.S. 330, 347 (2007) (describing *Pike* test as "permissive" and rejecting "invitations to rigorously scrutinize economic legislation passed under the auspices of the police power"). The Supreme Court has not struck down a state regulation under the *Pike* test since 1982. Brannon P. Denning, *Reconstructing the Dormant Commerce Clause Doctrine*, 50 WM. & MARY L. REV. 417, 456 & n.220 (2008) (citing David S. Day, *The 'Mature' Rehnquist Court and the Dormant Commerce Clause Doctrine: The Expanded Discrimination Tier*, 52 S.D. L. REV. 1, 49 (2007)).

136. Ferrey, *supra* note 85, at 72 n.115. This discrimination may have been inspired by national renewable standards across the globe that generally take this form and are now, in turn, the subject of international trade law disputes. Mark Wu & James Salzman, *The Next Generation of Trade and Environment Conflicts: The Rise of Green Industrial Policy*, 108 NW. U. L. REV. 401, 452 (2014).

137. Nathan E. Endrud, *State Renewable Portfolio Standards: Their Continued Validity and Relevance in Light of the Dormant Commerce Clause, the Supremacy Clause, and Possible Federal Legislation*, 45 HARV. J. ON LEGIS. 259, 265 (2008); Ferrey, *supra* note 85, at 69, 106–07; Steven Ferrey, *Restructuring a Green Grid: Legal Challenges to Accommodate New Renewable Energy Infrastructure*, 39 ENVTL. L. 977, 1004–05 (2009) (describing Commerce Clause issues when "states promote renewable resources in state to

these standards have not yet been decided, in a recent FERC case, Judge Posner described the dormant Commerce Clause as "an insurmountable constitutional objection" to Michigan's discriminatory state standard.[138]

Ultimately, however, the prohibition on discrimination will not vitiate state energy regulation: states simply must modify their regulations to treat in-state and out-of-state power on an evenhanded basis.[139] There is no environmental necessity to favor in-state power; indeed many states already employ nondiscriminatory power standards.[140] Furthermore, apart from renewable power standards, many of the other state regulations are, at least on their face, nondiscriminatory. For example, Minnesota's coal-power phaseout seems to apply the same standard for in-state and out-of-state electricity: no electricity from new coal-fired power plants.[141]

The prohibition on extraterritorial regulation, however, is a mortal threat to nearly all exported energy regulation. It forbids regulation with "the practical effect" of "control[ling] conduct beyond the boundaries of the State."[142] That forbidden effect is the *aim* of exported state energy regulation. State regulation of imported fuel and electricity is designed to limit greenhouse gas emissions associated with producing that fuel and electricity out of state.[143] A low-carbon fuel standard is designed to limit greenhouse gas emissions from production of fuels all over the world.[144] A state cap-and-trade or renewable power standard is designed to limit greenhouse gas emissions from power plants in all of its electricity trading partners.[145]

Although dormant Commerce Clause jurisprudence is famously murky and unsettled,[146] the Court has made clear that a state may not "project its

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the exclusion of power produced out of state"); Trevor D. Stiles, *Renewable Resources and the Dormant Commerce Clause*, 4 ENVTL. ENERGY L. & POL'Y J. 34 (2009).

138. Ill. Commerce Comm'n v. FERC, 721 F.3d 764, 776 (7th Cir. 2013).

139. Ferrey, *supra* note 85, at 106 ("The state . . . must not discriminate based solely on geography.").

140. *Id.* ("[S]ome RPS states facially discriminate based on geography, others *de facto* discriminate based on geography, and others do not discriminate.").

141. *See supra* notes 81–82 and accompanying text.

142. *See* Healy v. Beer Inst., 491 U.S. 324, 336 (1989); *see also* Nat'l Solid Wastes Mgmt. Ass'n v. Meyer, 165 F.3d 1151, 1153 (7th Cir. 1999) ("No state has the authority to tell other polities what laws they must enact or how affairs must be conducted outside its borders."); *id.* at 1154 ("Wisconsin's legislative power is limited to what happens in Wisconsin."); Nat'l Solid Wastes Mgmt. Ass'n v. Meyer, 63 F.3d 652, 658–60 (7th Cir. 1995) (stating that "a long line of cases . . . make clear that the Court will not hesitate to strike down a state law shown to have extraterritorial scope and an adverse impact on commerce occurring wholly outside the enacting state" and this "prohibition against direct regulation of interstate commerce by the states has been applied consistently by the circuits").

143. *See supra* notes 94–95 and accompanying text.

144. *See supra* Part II.B.

145. *See supra* Part II.A.

146. Maxwell L. Stearns, *A Beautiful Mend: A Game Theoretical Analysis of the Dormant Commerce Clause Doctrine*, 45 WM. & MARY L. REV. 1, 10 (2003) (dormant Commerce Clause "pervasively viewed as 'incoherent' and 'hopelessly confused'"); *see also* Kristin E. Hickman & Sarah L. Bunce, *Foreword:* DaimlerChrysler v. Cuno *and the Constitutionality of State Tax Incentives for Economic Development*, 4 GEO. J. L. & PUB.

legislation" into a neighboring state.[147] The "Commerce Clause . . . precludes the application of a state statute to commerce that takes place wholly outside of the State's borders, whether or not the commerce has effects within the State."[148] Although there is an active debate on the current scope of the extraterritoriality doctrine,[149] even its critics and those who believe it is largely "dead"[150] admit that it continues to forbid any regulation that is designed to "project[]" state regulation into another state or "control" activity in another state.[151]

In fact, modern extraterritoriality doctrine flows from a case that closely parallels exported state energy regulation. In *Baldwin v. G.A.F. Seelig, Inc.*,[152] the U.S. Supreme Court heard a challenge to a New York statute that set the minimum price at which milk could be purchased from dairies. To ensure that cheaper Vermont dairies did not undercut New York's mandated dairy price, New York also dictated that milk could not be retailed within the state unless it had been purchased from a dairy at the New York price.[153] Justice Cardozo, writing for a unanimous court, struck down the regulation, holding that New York had no power "to suppress or mitigate the consequences of competition between the states."[154] He acknowledged that the Court's decision would undercut New York's efforts to provide more protection than Vermont for the well being of its dairies.[155] The price paid for the Constitution was that "the several states must sink or swim together" because "in the long run prosperity and salvation are in union and not division."[156] If a state "may guard [its industry] against competition with [other states], the door has been opened to rivalries and

POL'Y 15, 21 (2006) ("The Court has acknowledged that its case-by-case approach toward policing the boundary between the Commerce Clause and state tax policy has resulted in 'much room for controversy and confusion and little in the way of precise guides to the States in the exercise of their indispensable power of taxation.'" (quoting Westinghouse Elec. Corp. v. Tully, 466 U.S. 388, 403 (1984))).

147. Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 521 (1935). *Baldwin* is "sometimes called the father of the modern extraterritoriality doctrine." Am. Beverage Ass'n v. Snyder, 700 F.3d 796, 815 (6th Cir. 2012) (Sutton, J., concurring).

148. Edgar v. MITE Corp., 457 U.S. 624, 642–43 (1982).

149. Alexandra B. Klass & Elizabeth Henley, *Energy Policy, Extraterritoriality, and the Dormant Commerce Clause*, 5 SAN DIEGO J. CLIMATE & ENERGY L. 127 (2014).

150. Brannon P. Denning, *Extraterritoriality and the Dormant Commerce Clause: A Doctrinal Post-Mortem*, 73 LA. L. REV. 979, 980 (2013).

151. *Id.* at 992 (noting courts strike down laws "where it is clear that a statute seeks to enable State A to control activities occurring in State B, or to use *Baldwin*'s phrase, where State A is 'projecting' its legislation into State B"); *see also Am. Beverage Ass'n*, 700 F.3d at 815 (criticizing the extraterritoriality doctrine but reaffirming the importance of *Baldwin*'s rejection of "duties designed to neutralize advantages . . . [of] place of origin" (quoting *Baldwin*, 294 U.S. at 527)); Healy v. Beer Inst., 491 U.S. 324, 335–36 (1989) (noting "the Constitution's special concern both with the maintenance of a national economic union unfettered by state-imposed limitations on interstate commerce and with the autonomy of the individual States within their respective spheres"); Jack L. Goldsmith & Alan O. Sykes, *The Internet and the Dormant Commerce Clause*, 110 YALE L.J. 785 (2001).

152. 294 U.S. 511 (1935).

153. *Id.* at 519.

154. *Id.* at 522.

155. *Id.* at 522–23.

156. *Id.* at 523.

reprisals that were meant to be averted by subjecting commerce between the states to the power of the nation."[157]

Justice Cardozo also stressed that New York could restrict the sale of milk if something was wrong with the milk itself,[158] but could not "neutralize advantages" created by Vermont's lack of pricing regulation.[159] After all, he noted, if New York could set the minimum price for milk, "the next step would be to condition importation upon proof of a satisfactory wage scale in factory or shop"[160]—i.e., states could also demand that retailers only sell goods that had been produced by workers earning a minimum wage. States and cities with protective labor and employment standards naturally feel aggrieved when their prices are undercut by imports from parts of the country without these standards. Barring trade agreements, *nations* may close their borders to goods from other nations with poor labor or environmental standards. But if every state and locality could prohibit the purchase of goods from anywhere else that did not meet its labor standards that "would be to invite a speedy end of our national solidarity."[161]

New York's milk regulation closely parallels California's low-carbon fuel standard and Minnesota's Next Generation Energy Act.[162] As in *Baldwin* the regulated product is a commodity: milk is the same whatever the price paid to the dairy, just as electricity sold in Minnesota is no different whether it came from a coal-fired plant in North Dakota or from wind generation,[163] and just as gasoline sold in California is no different whether it came from the oil sands in Canada or a tight oil play in Texas.[164] Just as in *Baldwin*, the justification for regulation is competitive: if Minnesota and California only imposed the burden of regulation on in-state greenhouse gas emissions, their oil and electricity industries would be undercut by out-of-state producers.[165]

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157. *Id.* at 522.

158. *Id.* at 524.

159. *Id.* at 527.

160. *Id.* at 524.

161. *Id.* at 523. The Court's strongest statement of this principle appeared in *BMW of North America, Inc. v. Gore*:

> We may assume, *arguendo*, that it would be wise for every State to adopt Dr. Gore's preferred rule . . . But while we do not doubt that Congress has ample authority to enact such a policy for the entire Nation, it is clear that no single State could do so, or even impose its own policy choice on neighboring States.

517 U.S. 559, 570–71 (1996).

162. Minnesota Next Generation Energy Act, MINN. STAT. § 216H.03 (2011), *invalidated by* North Dakota v. Heydinger, No. 11-CV-3232 SRN/SER, 2014 WL 1612331 (D. Minn. Apr. 18, 2014).

163. *See* Brumberg, *supra* note 83, at 697–98.

164. CAL. AIR RES. BD., *supra* note 98, at V-30.

165. *See supra* notes 73–80 and accompanying text. Alternatively, California has sometimes argued that it has "assumed legal and political responsibility for emissions of carbon resulting from the production and transport, *regardless of location*, of transportation fuels actually used in California." Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1091–92 (E.D. Cal. 2011) (emphasis added). This of course, makes matters worse, as it amounts to an admission that it has violated *Baldwin*'s prohibition on "project[ing]" state regulation into other states. *Baldwin*, 294 U.S. at 521; *see also* C & A

It does not help states to argue that the ultimate transaction they are regulating—a sale of fuel or electricity—takes place within their jurisdiction. By necessity, states only regulate transactions within their borders; the point of the prohibition on extraterritorial regulation is that states cannot leverage in-state regulation to control actions elsewhere. Just as New York restricted retail of milk within the state based on the price that was paid for it out of state, states are regulating in-state electricity and fuel sales based on the greenhouse gas emissions used to produce them out of state. Simply put, exported energy regulations violate the Court's consistent command that "[s]tates and localities may not attach restrictions to exports or imports in order to control commerce in other [s]tates."[166]

State cap-and-trade and renewable power standards likely meet the same fate under conventional dormant Commerce Clause analysis. If they only applied to in-state emissions, they would avoid dormant Commerce Clause scrutiny. But they apply to emissions in the supply chain of electricity, even though electricity, like milk, is the same regardless of how it was produced. Of course, like Minnesota and California's statutes, it is quite possible that some of these statutes may ultimately survive legal challenges. Some may be upheld in court,[167] some may never be challenged, and industry may choose to settle some challenges while leaving most of the programs intact, as it did in lawsuits against renewable power standards in Massachusetts and New York.[168] Nevertheless, under conventional dormant Commerce Clause doctrine these exported regulations will remain in legal jeopardy.[169]

Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383, 393 (1994) (finding that states may not "extend [their] police power beyond its jurisdictional bounds").

166. *C & A Carbone*, 511 U.S. at 393.

167. Indeed, the low-carbon fuel standard was ultimately upheld by the Ninth Circuit over the dissent of seven judges. Rocky Mountain Farmers Union v. Corey, 740 F.3d 507 (9th Cir. 2014); Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070 (9th Cir. 2013). The judges in that case decided that the Supreme Court's extraterritoriality cases only forbid extraterritorial price regulation, not extraterritorial regulation of how items are produced in other states. Under this reasoning, California could forbid the importation of any goods produced in a way that it did not favor. California has already leapt at the opportunity: forbidding the importation of eggs that came from chickens that were not treated up to California's standards. Complaint, Missouri *ex. rel.* Chris Koster v. Harris, No. 1:14-AT-00067 (E.D. Cal. Feb. 3, 2014). Under the Ninth Circuit's reasoning California could, of course, also forbid imports from any state or country that did not follow California's environmental standards or labor standards.

168. Complaint at 1, Transcanada Power Mktg., Ltd. v. Bowles, No. 40070-FDS (C.D. Mass. 2010); Partial Settlement Agreement at 1, *Transcanada Power Mktg.*, No. 40070-FDS, *available at* http://www.mass.gov/eea/docs/doer/renewables/solar/settlement-agreement.pdf.

169. A further possibility is that the courts could abandon the long-standing extraterritoriality doctrine. From a policy perspective, courts may believe it is more important to "encourage[] [states] to continue and to expand [their] efforts to find a workable solution to lower carbon emissions" than to insist on constitutional limits on intranational trade barriers. *Corey*, 730 F.3d at 1107. Climate regulation advocates could join forces with conservative thinkers that have long expressed discomfort with the extraterritoriality doctrine. Healy v. Beer Inst., 491 U.S. 324, 344–45 (1989) (Scalia, J., concurring in part and concurring in judgment); Am. Beverage Ass'n v. Snyder, 700 F.3d 796, 810–15 (6th Cir. 2012) (Sutton, J., concurring); Goldsmith & Sykes, *supra* note 151. These critics generally

On the other hand, state regulation of fossil fuel exports and regulation of cross-state energy and energy equipment transport fares better in a dormant Commerce Clause analysis for two reasons. First, many of the state regulations involved—denying permits for export and transport facilities—would be difficult to challenge under the dormant Commerce Clause.[170] Given the multitude of factors that go into state permitting decisions, it would be difficult for a federal court to invalidate a state decision to reject an export facility even if the decision rested, in part, on a consideration of out-of-state emissions associated with the export's supply chain.[171] Second, even if export controls also are motivated by concern over greenhouse gas emissions associated with fossil fuel use, laws like

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argue that the dormant Commerce Clause should only be used to strike down discriminatory state laws, so the extraterritoriality test is unnecessary and imprecise. *Healy*, 491 U.S. at 344–45; *Am. Beverage Ass'n*, 700 F.3d at 810–15; Goldsmith & Sykes, *supra* note 151. It is better to focus on discrimination, they say, because "innumerable valid state laws affect pricing decisions in other States," so how can courts strike down laws on the basis of their extraterritorial effect? *Healy*, 491 U.S. at 345. Trade law, however, has long answered this puzzle: regulations are extraterritorial and thus invalid only when, as in *Baldwin*, the regulation is *targeted* at out-of-state decisions. There is a simple way to tell if a regulation is aimed at out-of-state production: (1) does the regulation address a characteristic of the product itself or (2) does it address how the product was made? Regulation of a product's characteristics often affects manufacturing and pricing decisions in other states and Justice Scalia is correct that these incidental effects are acceptable. *Id.* But restricting imports of products based on how they were made is the archetypal trade restriction. If the United States banned the sale of products produced by workers who were not paid the U.S. minimum wage, it would cut off most imports from the developing world. Similarly, if California required that products sold within its borders be manufactured in compliance with all of its labor and environmental standards, the practical result of this nondiscriminatory law would be a complete ban on imports: labor and environmental standards differ from state to state and nation to nation so only California products would qualify for sale in California. Any coherent rule against trade restrictions must include an extraterritoriality rule as well as an antidiscrimination rule. Thus, the new climate regulations expose a flaw in the conservative critique of the extraterritoriality doctrine. For example, California pays a higher minimum wage. *See* CAL. LAB. CODE § 1182.12 (West 2014) (setting minimum wage at $9.00 per hour as of July 1, 2014). Imagine that California prohibited sale of any product that was not manufactured by workers paid its minimum wage. Such a regulation would be perfectly nondiscriminatory—it would apply equally to workers inside or outside California. But it would be extraterritorial. For that reason, it would violate not only intranational trade principles but also U.S. international trade agreements. Singapore Ministerial Declaration of 13 December 1996, WT/MIN(96)/DEC (1996) ("We reject the use of labour standards for protectionist purposes, and agree that the comparative advantage of countries, particularly low-wage developing countries, must in no way be put into question."). If the dormant Commerce Clause prevents states from forbidding imports, it must include an extraterritoriality prong.

170. Donald H. Regan, *The Supreme Court and State Protectionism: Making Sense of the Dormant Commerce Clause*, 84 MICH. L. REV. 1091, 1258 (1986) (explaining that the Supreme Court has been more forgiving of regulations of export than import).

171. *But see* Dakota, Minn. & E. R.R. Corp. v. South Dakota, 236 F. Supp. 2d 989, 1018 (S.D. 2002) (holding that siting regulation violated dormant Commerce Clause by imposing administrative burdens that would prevent a pipeline from being built). Indeed, when Oregon recently rejected a moderate-sized coal export facility it rested its decision on local water quality impacts rather than the extraterritorial climate impacts that brought attention to the planned facility. STATE OF OREGON, SUMMARY OF THE COYOTE ISLAND TERMINAL PERMIT DECISION (Aug. 18, 2014), http://www.oregon.gov/dsl/PERMITS/docs/cit_decision_summary.pdf.

Minnesota's proposed oil shipment fees are, in part, aimed at local impacts including the danger of crude oil spills.[172] Minnesota has not, for instance, proposed distinguishing among the types of crude transported through the state based on their different out-of-state emissions.[173] Although they would likely survive judicial review, these mixed-motive regulations, like state regulation of imported fuel and electricity present practical problems for national energy markets, as explored in the next section.

B. Problem Two: Splintering Energy Markets

The problems with exported state energy regulation are not merely legal. These regulations provide states with a strong temptation to engage in protectionism, which in turn threatens to splinter national energy markets. In *Baldwin*, Justice Cardozo warned that allowing one state to project its regulation into another would mean "the door has been opened to rivalries and reprisals that were meant to be averted by subjecting commerce between the states to the power of the nation."[174] State exported regulations have confirmed this prediction. The most obvious example is state renewable power standards that explicitly favor in-state power. But protectionism is ubiquitous in state exported energy regulations, taking both blatant and subtle forms.

California's low-carbon fuel standard demonstrates how even well-intentioned regulation presents a temptation toward protectionism. The low-carbon fuel standard was authorized by Governor Schwarzenegger in January 2007 as part of California's efforts to cut its greenhouse gas emissions back to 1990 levels by 2020.[175] Scientists from the University of California system set its initial design, which was supposed to incorporate the most recent research on fuel lifecycles.[176]

During its implementation, the low-carbon fuel standard was quickly altered based on more parochial concerns. For example, the standard was supposed to strictly penalize the sale of fuel derived from unconventional heavy oils because those oils require more energy to extract. Thus, it implemented punishing carbon intensity scores for fuels from Canada and

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172. On the other hand, it is possible that Minnesota's law would be subject to a preemption challenge under the Pipeline Safety Act. *See* 49 U.S.C. § 60104(c) (2012) ("A State authority may not adopt or continue in force safety standards for interstate pipeline facilities or interstate pipeline transportation.").

173. Some outward focused energy transport regulations affirmatively enable interstate commerce. For example, FERC has now authorized, indeed required, states to consider the impact of their electric transmission siting decisions on other states' renewable energy industries. Transmission Planning and Cost Allocation by Transmission Owning and Operating Public Utilities, 76 Fed. Reg. 49,842, 49,846 (Aug. 11, 2011) (codified at 18 C.F.R. 35).

174. Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 522 (1935).

175. Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1079 (E.D. Cal. 2011).

176. *See generally* ALEXANDER E. FARRELL & DANIEL SPERLING, A LOW-CARBON FUEL STANDARD FOR CALIFORNIA PART 1: TECHNICAL ANALYSIS (2007), *available at* http://escholarship.org/uc/item/6j67z9w6.

Venezuela.[177] But California could not bring itself to regulate its own oil so strictly, so it exempted unconventional California oil despite its similar emission profile.[178] In tandem, these decisions meant that the standard insulated California heavy oil from foreign competition. California also did not rely on the U.S. government's standard model, known as GREET, for estimating emissions associated with producing ethanol.[179] Instead, it created an alternate California model, CA-GREET, that broke up ethanol into two geographical categories, "California" and "Midwest."[180] California's modified model consistently assigned "a higher [carbon intensity] score to the ethanol produced in the Midwest and [a] lower score to the ethanol produced the same way in California."[181]

By the time that California's regulation was finally adopted, the state was explaining its protectionist impulses forthrightly, noting that "[o]ne of the key advantages of the [standard] . . . is that it reduces our dependence on foreign oil," and would "reduc[e] the volume of transportation fuels that are imported from other states."[182] As California explained: "Displacing imported transportation fuels with biofuels produced in the State keeps more money in the State."[183] From its original aim of reducing out-of-state greenhouse gas emissions, a well-intentioned if constitutionally suspect goal, the purpose of the standard gradually shifted to fuel industry protectionism.

Given the detours taken by such well-intentioned regulations, it is not surprising that state renewable power standards also have resulted in protectionist battles. As one commentator noted, "[n]o renewable energy mandate passed a state legislature without the promise of thousands of new jobs," so legislatures have insisted that the renewable power mandated by the standards be developed within the state.[184] For this reason, over half of renewable power standards explicitly discriminate in favor of in-state renewable energy.[185] As a result, these renewable power standards are

177. Rocky Mountain Farmers Union v. Goldstene, No. CV-F-09-2234 LJO DLB, slip op. at *17–21 (E.D. Cal. Dec. 29, 2011) (order granting summary adjudication motion for National Petrochemical & Refiners Ass'n).

178. *Id.* After its regulation was enjoined by the district court, California introduced regulatory amendments that calculate emissions for California's heavy oil, but continue to favor it by treating it as part of the same batch as light oil from California and other jurisdictions. *See* CAL. AIR RES. BD., FINAL STATEMENT OF REASONS: AMENDMENTS TO THE LOW CARBON FUEL STANDARD REGULATION (2012).

179. CAL. AIR RESOURCES BD., *supra* note 178, at 16.

180. *Goldstene*, 843 F. Supp. 2d at 1086–87.

181. *Id.* at 1089. California justified its modification to the federal model by pointing further up the supply chain, noting that Midwestern ethanol facilities rely on electricity from power plants that, in turn, produce greater greenhouse gas emissions. *Id.* at 1088. The point, however, is that it is simple to alter a model and the boundaries of a lifecycle analysis to achieve a result that will favor in-state industry.

182. *Id.* at 1079–80.

183. CAL. AIR RES. BD., FINAL STATEMENT OF REASONS: CALIFORNIA'S LOW CARBON FUEL STANDARD 479 (2009).

184. John Farrell, *In-State Renewable Energy Development and the Commerce Clause*, INST. FOR LOCAL SELF-RELIANCE (Feb. 2, 2011), http://www.ilsr.org/state-renewable-energy-development-and-commerce-clause.

185. Ferrey, *supra* note 85, at 72 n.115.

working at cross-purposes with FERC efforts to integrate state electricity markets.

State renewable power standards also incorporate more subtle discrimination. For example, most of the New England states exclude inexpensive Canadian hydropower from their renewable power standards through limitations on the construction date and size of qualifying hydroelectric projects.[186] Despite its low-carbon emission profile, Massachusetts environmental groups opposed even transmitting hydropower to Massachusetts for fear that transmission might be a first step to altering the state's renewable power standard to credit hydroelectricity from Quebec.[187]

C. Solution: Federal Supervision of Exported State Energy Regulation

To preserve the benefits of state leadership on energy policy as well as the benefits of integrated national energy markets, the federal government must supervise exported state regulation. Specifically, Congress should direct FERC, with input from the Environmental Protection Agency (EPA), to authorize state regulations that are nondiscriminatory and do not threaten to splinter interstate markets.[188] Several alternative mechanisms could work, but ideally FERC should be required to review and approve, modify, or reject all exported energy regulations within 180 days of a state application for authorization, subject to judicial review. The dormant Commerce Clause is an inference from congressional silence, so congressional authorization would insulate approved regulation from constitutional attack.[189]

To institute FERC review, Congress should provide a prospective date on which state exported energy regulations would be preempted.[190] The date should leave sufficient time for FERC to review state applications and approve their renewable power standards, low-carbon fuel standards, and

186. Scott Thistle, *LePage Continues Effort to Lower Energy Costs for Maine Ratepayers*, BANGOR DAILY NEWS (Jan. 7, 2014, 7:46 PM), http://bangordailynews.com/2014/01/05/politics/lepage-continues-effort-to-lower-energy-costs-for-maine-ratepayers.

187. Editorial, *Gains Outweigh the Costs for Hydropower from Quebec*, BOS. GLOBE (Sept. 15, 2013), http://www.bostonglobe.com/opinion/editorials/2013/09/15/hydropower-from-quebec-worth-pursuing-despite-concerns-about-power-lines/oPe8tp1ZLCH9 kqM9eEqH6O/story.html (recommending that the transmission be approved but the renewable power standard not be changed to ensure the health of Massachusetts' "burgeoning wind and solar sectors").

188. Pursuant to congressional authorization agencies may authorize or preempt state regulation. Quill Corp. v. North Dakota, 504 U.S. 298, 305 (1992) (authorize); Jim Chen, *A Vision Softly Creeping: Congressional Acquiescence and the Dormant Commerce Clause*, 88 MINN. L. REV. 1764, 1790 (2004) (authorize); Catherine M. Sharkey, *Inside Agency Preemption*, 110 MICH. L. REV. 521, 524–25 (2012) (preempt).

189. *See* S. Cent. Timber Dev., Inc. v. Wunnicke, 467 U.S. 82, 87–88 (1984); Prudential Ins. Co. v. Benjamin, 328 U.S. 408, 421–40 (1946).

190. The statute should preempt "all state regulation of fuel, electricity, or other products within an energy supply chain that is predicated on the out-of-state consequences of producing or consuming that fuel or electricity."

environmental assessment laws.[191] Given the complexity of FERC's task, it should also be given authority to extend the preemption drop-dead date if it falls behind in its review of state legislation.

The scale of FERC's proposed review, while significant, is not particularly unusual in the context of energy and environmental regulation. Under the Clean Air Act's cooperative federalism framework, the EPA must review and approve comprehensive state plans for addressing several different pollutants subject to statutory deadlines.[192] In fact, in the coming years, the EPA will have to review state renewable power standards anyway to determine whether those standards meet its forthcoming Clean Air Act standards for greenhouse gas emissions from existing fossil fuel–fired power plants.[193] FERC's review of state energy regulations could be coordinated with the EPA's review of those standards under the Clean Air Act.[194]

This reform also would not significantly expand federal supervision of state energy laws. State energy laws limited to in-state emissions would not be preempted.[195] For example, state emission standards, energy efficiency standards, and incentive programs would not be affected.[196] Further, if states adjusted their renewable power standards to address in-state electricity production, only renewable power standards that focus on nationwide emissions associated with in-state consumption of electricity would be subject to FERC review.[197] As a result, the laws reviewed by FERC would be the laws otherwise subject to review in federal court.

191. Because Congress undoubtedly has the power to preempt state regulation of interstate energy markets, this mechanism does not present a preclearance concern. *See* Shelby Cnty. v. Holder, 133 S. Ct. 2612, 2624 (2013).

192. Ann E. Carlson, *The President, Climate Change, and California*, 126 HARV. L. REV. 156, 158–59 (2013) (arguing that California's cap-and-trade system should qualify as a state standard under 42 U.S.C. § 7411(d)).

193. Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014); *see also* 42 U.S.C. § 7411(d) (providing for EPA review of a state plan that "establishes standards of performance for any existing source").

194. The federal agencies have proven successful at coordinating policies across different agencies in response to climate change. Jody Freeman, *The Obama Administration's National Auto Policy: Lessons from the "Car Deal,"* 35 HARV. ENVTL. L. REV. 343, 347 (2011) (describing collaboration of EPA and the Department of Transportation); *see also* Jody Freeman & Jim Rossi, *Agency Coordination in Shared Regulatory Space*, 125 HARV. L. REV. 1131 (2012).

195. *See supra* note 190 (stating the proposed text of preemption clause).

196. States have adopted numerous regulations and incentive programs that apply to in-state sources from buildings to appliances to agricultural and industrial sources. Pace Law Sch. Ctr. for Envtl. Legal Studies, *The State Response to Climate Change: 50-State Survey*, *in* GLOBAL CLIMATE CHANGE AND U.S. LAW 371 (Michael B. Gerrard ed., 2007); *see also* Kirsten Engel, *State and Local Climate Change Initiatives: What Is Motivating State and Local Governments to Address a Global Problem and What Does This Say About Federalism and Environmental Law?*, 38 URB. LAW. 1015, 1017 (2006).

197. If a state chose not to submit an arguably preempted plan to FERC for review, it could, of course, be invalidated by a federal preemption lawsuit.

States would simply exchange judicial review for an expert administrative reviewer.[198]

Although federal courts considering dormant Commerce Clause challenges commonly resolve questions of discrimination and market splintering, often labeled "Balkanization,"[199] judicial review under the dormant Commerce Clause is a very blunt tool for policing state regulation of imported fuel and electricity. Substantively, *Baldwin* and the extraterritoriality cases forbid all regulation of commodities based on how they were produced out of state.[200] This rule seems appropriate for state laws forbidding imports from states with inconsistent minimum wage standards or labor laws, but it is too restrictive for innovative state energy programs.

First, many of these regulations target greenhouse gas emissions, which have the same effect on global warming no matter where they are emitted.[201] State competition may impose some economic disincentive to regulate water pollution,[202] but even if regulating states lose industry and jobs, they will retain the benefit of clean water. In contrast, when states burden their domestic industry with climate regulations, competition will also destroy the environmental benefits of their regulation: in addition to losing jobs, increased out-of-state greenhouse gas emissions mean they will face the same harm from global warming.[203] The EPA's forthcoming rules for state power sector emissions may somewhat mitigate this problem by limiting each state's power sector emissions, which theoretically should restrain industry from fleeing to neighboring states.[204] But the plan does not hold all states to the same standard and leaves the most-polluting states

198. This choice would, of course, be consistent with settled administrative law doctrine that technical questions of policy are best resolved by agencies rather than courts. Chevron U.S.A. Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 844–45 (1984) ("[T]he principle of deference to administrative interpretations has been consistently followed by this Court whenever decision as to the meaning or reach of a statute has involved reconciling conflicting policies, and a full understanding of the force of the statutory policy in the given situation has depended upon more than ordinary knowledge respecting the matters subjected to agency regulations." (citing United States v. Shimer, 367 U.S. 374, 382 (1961) (internal quotation omitted))).

199. *See* Hughes v. Oklahoma, 441 U.S. 322, 325 (1979).

200. *See, e.g.*, C & A Carbone, Inc. v. Town of Clarkstown, 511 U.S. 383, 392–93 (1994); Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 524 (1935).

201. NAT'L RESEARCH COUNCIL, *supra* note 6, at 10–11.

202. *But see* Richard L. Revesz, *Rehabilitating Interstate Competition: Rethinking the "Race-to-the-Bottom" Rationale for Federal Environmental Regulation*, 67 N.Y.U. L. REV. 1210, 1229 (1992) (arguing that competition leads to improved regulation of environmental harms with local impacts); Richard L. Revesz, *The Race to the Bottom and Federal Environmental Regulation: A Response to Critics*, 82 MINN. L. REV. 535 (1997) (same).

203. *See supra* notes 6–7 and accompanying text; *see also* Brewster, *supra* note 79, at 247 ("[I]f higher environmental regulation in one nation leads to increased production of carbon-heavy goods elsewhere, then the reductions in one nation may be offset or nullified completely by greenhouse gas production in other parts of the globe.").

204. Carbon Pollution Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34,830 (June 18, 2014).

with the loosest standards—leaving plenty of room for industry to flee regulating states.[205]

Second, addressing the competitiveness problem posed by climate regulation is the most pressing dilemma for subglobal energy regulation: How can national climate regulations encourage rather than discourage action elsewhere?[206] If states may not adopt regulations that mitigate the competitiveness concern, they will be largely useless as a model for the federal government or other governments around the world, forfeiting the benefits of states' traditional role as laboratories of democracy for energy policy.[207] Despite the protectionist temptation, some of the state regulations, while extraterritorial, impose only a minimal burden on commerce in other states. For example, Minnesota's limitation on electricity from new coal-fired plants in North Dakota is even-handed and leaves plenty of room for continuing electricity trade with all existing power plants in North Dakota and nearly all future plants.[208] Some room for this kind of even-handed regulation of imported fuel and electricity is necessary so long as it does not splinter interstate markets, and FERC should have the power to authorize it.

At the same time, the mere fact that out-of-state greenhouse gas emissions affect climate around the world, and in the regulating state, cannot justify a blanket authorization of extraterritorial state climate regulations. Discriminatory regulations are plainly problematic because they will quickly carve the national energy market into fifty isolated enclaves.[209] But even-handed regulations may also have this effect if they are totally unchecked. For example, imagine that North Carolina chose to implement a 100 percent hydropower renewable power standard. This regulation would be nondiscriminatory—it would apply equally to in-state and out-of-state sources—but practically speaking, it would turn North Carolina into an electricity island because utilities in neighboring states

205. Phillip Wallach & Alex Abdun-Nabi, *The EPA's Carbon Plan Asks the Least from States That Pollute the Most*, WASH. POST (July 16, 2014), http://www.washingtonpost.com/blogs/wonkblog/wp/2014/07/16/the-epas-carbon-plan-asks-the-least-from-states-that-pollute-the-most. Some key coal power plants, such as those that export electricity to California, are located on tribal land that is not covered by the new EPA standards. Cullenward, *supra* note 80, at 7.

206. *See generally* Coleman, *supra* note 4; *see also* Daniel A. Farber, *Carbon Leakage Versus Policy Diffusion: The Perils and Promise of Subglobal Climate Action*, 13 CHI. J. INT'L L. 359, 362–67 (2013).

207. These benefits are particularly crucial in the arena of climate and energy policy where federal policy is unsettled. *See, e.g.*, Jim Rossi & Thomas Hutton, *Federal Preemption and the Clean Energy Floor*, 91 N.C. L. REV. 1283 (2013) (criticizing preemption of state energy regulation that is more protective of the environment than federal law); Adelman & Engel, *supra* note 64, at 1834–35 (advocating less preemption of local regulation, even for national and international problems).

208. For more detail, see *infra* notes 66–81 and accompanying text.

209. *See* Baldwin v. G.A.F. Seelig, Inc., 294 U.S. 511, 522 (1935) ("If New York, in order to promote the economic welfare of her farmers, may guard them against competition with the cheaper prices of Vermont, the door has been opened to rivalries and reprisals that were meant to be averted by subjecting commerce between the states to the power of the nation.").

would have other power sources and North Carolina could not take their electricity. Finally, if any climate impact could entirely negate dormant Commerce Clause constraints, trade in other commodities could be seriously impacted. For instance, transport of fruits and vegetables leads to greenhouse gas emissions, but if a state could prevent the sale of produce that required significant greenhouse gas emissions to reach its consumers, national food markets would break down.[210]

Procedurally, transferring review of exported regulations from the courts to FERC would bring significantly enhanced expertise to bear on the conundrums posed by exported energy regulations. Whether these regulations are even-handed and whether they would splinter energy markets are questions that often turn on highly technical arguments that are not well aligned with the expertise of the judiciary or modes of judicial review.[211] Indeed, the court tasked with resolving the dormant Commerce Clause dispute between North Dakota and Minnesota asked the parties sua sponte whether there was any way it could defer the decision to FERC.[212] Ultimately, it concluded there was no way to avoid the decision.[213] Courts are not eager to resolve these disputes; they should be resolved by FERC. Similarly, it would be unwise to simply abrogate the extraterritoriality test for state energy regulation and continue relying on the courts to implement a rump dormant Commerce Clause analysis, striking down state regulations that were discriminatory or imposed excessive burdens on interstate commerce.[214]

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210. California's low-carbon fuel standard adopted exactly this kind of analysis for ethanol, punishing Midwestern ethanol producers for transporting their ethanol to California, and punishing California ethanol producers for transporting their corn from the Midwest to California. *See* Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1088 (E.D. Cal. 2011).

211. This is consistent with the suggestion of numerous commentators that the new challenges of energy and climate regulation are best resolved by expert agencies, not the courts. Jody Freeman & David B. Spence, *Old Statutes, New Problems*, 163 U. PA. L. REV. (forthcoming 2014) (arguing that courts should defer to agencies, which are best suited to resolve problems presented by fracking and climate change); Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 ENVTL. L. 1, 8–44 (2011) (arguing that courts are an impractical forum for resolving climate change disputes); *see also* Matthew C. Stephenson, *Legislative Allocation of Delegated Power: Uncertainty, Risk, and the Choice Between Agencies and Courts*, 119 HARV. L. REV. 1035, 1042–43 (2006) (describing the role of agency expertise in determining when decisions should be entrusted to agencies).

212. *See* North Dakota v. Swanson, No. 11-3232, 2012 WL 4479246, at *3 (D. Minn. Sept. 30, 2012).

213. *Id.* at *19.

214. The same criticism applies to other proposals to modify dormant Commerce Clause doctrine to apply less searching review to state energy laws. *See* Kirsten H. Engel, *The Dormant Commerce Clause Threat to Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 ECOLOGY L.Q. 243 (1999) (arguing for a broad dormant Commerce Clause exemption for state-created environmental markets); Daniel A. Farber, *Climate Change, Federalism, and the Constitution*, 50 ARIZ. L. REV. 879 (2008) (arguing for a strong presumption against invalidating state climate regulation on dormant Commerce Clause grounds); Peter C. Felmly, *Beyond the Reach of States: The Dormant Commerce Clause, Extraterritorial State Regulation, and the Concerns of Federalism*, 55 ME. L. REV. 467, 512 (2003); Lee & Duane, *supra* note 85, at 355–62 (arguing for intermediate scrutiny, market participant exception, and increased deference for state climate regulations);

For example, imagine how a court would assess reciprocal dormant Commerce Clause suits against two states with different scientific assessments of the climate impact of natural gas and coal power. Natural gas power plants burn cleaner than coal power plants, emitting far less carbon dioxide, but natural gas production and transport emits methane, another greenhouse gas, that offsets some of this benefit.[215] The most comprehensive literature surveys conclude that natural gas, on net, has a smaller climate impact than coal,[216] but there is a legitimate and active scientific debate on this question, which may be the single most important question for the nation's climate future.[217] Scientific opinions on the total climate impact of natural gas stretch from those who say gas has only a third of the climate impact of coal[218] to those who say gas actually has a larger impact.[219] Now, imagine that a natural gas reliant state adopted a cap-and-trade system that attributed a very large climate benefit to gas and a neighboring coal-heavy state adopted a cap-and-trade system that labeled natural gas worse than coal. Both states could point to a rigorous, peer-reviewed scientific basis for their regulations—but how would a court respond to dueling dormant Commerce Clause lawsuits against these cap-and-trade systems?

A court in this situation has few palatable options. Declaring one or both of the statutes constitutionally invalid would require wading into an active scientific debate. But leaving both in place would carve up interstate energy markets as states adopt self-serving, but scientifically defensible, characterizations of electricity generated in other states. The scientific battle over gas versus coal is just one part of a constant scientific battle over the climate benefits and drawbacks of nearly every energy source. If scientists cannot even agree on the most basic issues, how can courts decide whether one ethanol factory truly has a smaller climate impact than another factory? Lifecycle analyses, like that contained in California's low-carbon fuel standard, vary so widely that states, relying on favorable published

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Christine A. Klein, *The Environmental Commerce Clause*, 27 HARV. ENVTL. L. REV. 1 (2003); Trevor D. Stiles, *Renewable Resources and the Dormant Commerce Clause*, 4 ENVTL. & ENERGY L. & POL'Y J. 34, 65–67 (2009). It is also unlikely that the courts will choose to incorporate an entirely separate climate factor into their already complex dormant Commerce Clause analysis.

215. *See* Osofsky & Wiseman, *supra* note 31, at 786 n.43 (describing debate).

216. A. R. Brandt et al., *Methane Leaks from North American Natural Gas Systems*, 343 SCIENCE 733, 734 (2014).

217. For example, the widely reported drop in United States greenhouse gas emissions is a result of the assumption that natural gas has a smaller climate impact than coal. U.S. Energy Info. Admin., *U.S. Energy-Related Carbon Dioxide Emissions, 2012*, EIA.GOV (Oct. 21, 2013), http://www.eia.gov/environment/emissions/carbon ("The increase in natural gas-fired generation, while coal-fired generation decreased, substantially reduced the carbon intensity of electricity generation in 2012.").

218. *See* Lawrence M. Cathles III et al., *A Commentary on "The Greenhouse-Gas Footprint of Natural Gas in Shale Formations" by RW Howarth, R. Santoro, and Anthony Ingraffea*, 113 CLIMATIC CHANGE 525, 533–34 (2012) (noting that "gas has less than half and perhaps a third the greenhouse impact as coal").

219. *See* Robert W. Howarth et al., *Methane and the Greenhouse-Gas Footprint of Natural Gas from Shale Formations*, 106 CLIMATIC CHANGE 679, 688 (2011).

studies, could justify restricting imports from nearly any energy source. For example, a recent *Nature* study stated that, under certain circumstances, the land-use impacts of wind power could entirely wipe out its climate benefit.[220] Of course, a federal agency would not build its policy on such an outlier view, regardless of the scientific rigor of the individual study. But a court would have difficulty striking down state regulations grounded on published scientific estimates, and that would be enough to justify inconsistent laws that could quickly splinter interstate energy markets.

Nor do courts have the technical expertise to judge whether a given renewable power standard would cut a state off from interstate electricity markets to an unacceptable degree. All such standards will place some burden on interstate commerce, so a balance needs to be struck reflecting federal policy on the need for both integrated energy markets and state innovation in energy regulation. And that balance should reflect the best evidence of the impact of state regulations on interstate electricity trade. For example, at what level of stringency do renewable power standards amount to a de facto ban on import of electricity from neighboring states? Do standards that prescribe percentages for each type of renewable power isolate states at lower percentage goals? FERC has the expertise to address these thorny questions and the courts do not.[221]

Although courts are experts at balancing state and federal power, FERC also has the ability and the duty to consider the federalism dimensions of authorization and preemption questions. When federal agency regulation has an impact on state authority, the agency must consider its federalism implications and must issue a Federalism Impact Statement under Executive Order 13,132.[222] Furthermore, FERC has already been entrusted with implementing the cooperative federalism provisions of the Environmental Policy Act of 2005, which authorizes FERC to preempt state authority and approve facilities for "interstate electric transmission" if states are delaying

220. Jo Smith et al., *Avoid Constructing Wind Farms on Peat*, 489 NATURE 33 (2012). Similarly rigorous but outlier studies have from time to time been published, finding strong climate impacts from other technologies thought to be low carbon. *See, e.g.*, Ethan S. Warner & Garvin A. Heath, *Life Cycle Greenhouse Gas Emissions of Nuclear Electricity Generation: Systematic Review and Harmonization*, 16 J. OF INDUS. ECOL. S73 (2012).

221. This conclusion is consistent with an established literature on the benefits of delegating technical questions to an expert agency. *See* Stephen Breyer, *Judicial Review of Questions of Law and Policy*, 38 ADMIN. L. REV. 363 (1986); Thomas W. Merrill, *Judicial Deference to Executive Precedent*, 101 YALE L.J. 969 (1992); Richard J. Pierce, Jr., *Seven Ways to Deossify Agency Rulemaking*, 47 ADMIN. L. REV. 59 (1995); Cass R. Sunstein, *Law and Administration After* Chevron, 90 COLUM. L. REV. 2071 (1990).

222. Exec. Order No. 13,132, 3 C.F.R. 206 (1999). Assuming that agencies have validly been delegated Congress's power to authorize or preempt, agency action already satisfies the formal requirements of the dormant Commerce Clause and the Supremacy Clause, respectively. However, to the extent that one wishes to use those clauses to protect the spirit (rather than merely the letter) of "our federalism," agencies have a mandate to consider that spirit in making authorization and preemption decisions. *Id. But see* John F. Manning, *Federalism and the Generality Problem in Constitutional Interpretation*, 122 HARV. L. REV. 2003 (2009) (arguing that judicial protection for federalism must be based in text, rather than the purposes, of the Constitution).

critical projects that are consistent with "sound national energy policy."[223] Thus, FERC has authority to address both the technical and the federalism aspects of the energy-policy-innovation versus market-integration dilemma.

Finally, alternative modes of addressing this dilemma are unlikely to be effective. For example, while interstate compacts may be very useful for addressing regional dilemmas like those presented by interstate waterways,[224] they would be less helpful in addressing a problem that, like climate change, links all states. To devise a consensual imported electricity policy, California would have to coordinate with Arizona, and Arizona would have to coordinate with New Mexico, and New Mexico would have to coordinate with Colorado. Furthermore, regulation of imported fossil fuels would touch noncontiguous states across the country: this is why Midwestern states filed arguments against California's low-carbon fuel standard.[225] The problem requires national—rather than merely regional—coordination.

IV. RECONCILING STATE REGULATION AND A NATIONAL MARKET

Once FERC is empowered to authorize or preempt state exported energy regulations, it should use that authority to strike a balance between national energy markets and state experimentation in energy policy. It should be empowered to make rules or, alternatively, issue guidance that signals to state lawmakers the boundaries of their authority in each of the three areas of exported regulation: imported electricity, imported fuels, and exported fuel and energy supply chains.

A. Imported Electricity

The two primary concerns regarding state regulation of imported electricity are explicit discrimination and drastically inconsistent evaluations of different power sources. Explicit discrimination is an easy case: FERC should preempt discriminatory provisions. The only difficult

223. 16 U.S.C. § 824p(b) (2012) (as amended by the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005)); *see also* R. Seth Davis, Note, *Conditional Preemption, Commandeering, and the Values of Cooperative Federalism: An Analysis of Section 216 of EPAct*, 108 COLUM. L. REV. 404, 440–41 (2008) (arguing that the statute creates an effective cooperative federalism regime). *But see* Stein, *supra* note 124, at 244 (arguing that FERC's power has been vitiated by the courts). The EPA, of course, has been given the task of implementing numerous systems of cooperative federalism including the Clean Air Act's provisions for best available control technology at new industrial sources, 42 U.S.C. § 7475(a) (2012), and for performance standards for existing sources in specified categories. *Id.* § 7411(d).

224. Mark S. Davis & Michael Pappas, *Escaping the* Sporhase *Maze: Protecting State Waters Within the Commerce Clause*, 73 LA. L. REV. 175, 198–99 (2012) (discussing use of compacts to exempt state authority from dormant Commerce Clause scrutiny); *see also* Duncan B. Hollis, *Unpacking the Compact Clause*, 88 TEX. L. REV. 741, 754–58 & nn.57–68 (2010) (documenting fifty environmentally focused compacts concluded with other nations).

225. Rocky Mountain Farmers Union v. Corey, 740 F.3d 507, 512–13 (9th Cir. 2014) ("The states of Nebraska, Illinois, Iowa, Kansas, Michigan, Missouri, North Dakota, Ohio, and South Dakota (which are major producers of corn and ethanol) filed an amicus brief in support of en banc rehearing.").

question is severability: Should FERC have the power to preempt portions of state energy standards while leaving the rest intact? For example, if a state legislature passed a renewable power standard only because it thought that discrimination in favor of in-state power would create "green jobs,"[226] then preempting that portion and authorizing the rest would arguably leave the state with a policy that it would never have passed.[227] To remedy this problem, states should be encouraged to include a severability plan that lays out their preferred response to federal preemption. If states do not offer such a plan, FERC should preempt only the discriminatory portion of the regulation to minimize disruption to state policy.[228]

Implicit discrimination is more complex. FERC should bracket state authority to regulate imported electricity based on its source. First, FERC should only allow states to address how electricity was produced in another state if the differential treatment is based on climate impact. For example, states should not have the authority to project their views of nuclear power into neighboring states no matter how strongly those views are held.[229] That kind of extraterritorial regulation would be just as problematic as limiting trade based on the wage paid to out-of-state workers—only the entirely cross-border harm of climate change can justify regulating the out-of-state supply chain of a commodity like electricity.[230] Second, FERC, employing a science advisory committee and the best science, should establish boundaries on states' assessments of different power sources, rejecting outlier views and establishing a hierarchy of power sources based on their climate impact.[231] This would ensure that states employ broadly consistent standards that would allow integrated markets.

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226. Farrell, *supra* note 184.

227. This is the result that courts try to avoid when severing a partially unconstitutional state statute. *See, e.g.*, Ayotte v. Planned Parenthood of N. New Eng., 546 U.S. 320, 330 (2006) ("[W]e must next ask: Would the legislature have preferred what is left of its statute to no statute at all?").

228. This is also the preference of the courts. Brockett v. Spokane Arcades, Inc., 472 U.S. 491, 504 (1985) ("[T]he normal rule [is] that partial, rather than facial, invalidation is the required course.").

229. In practice this could mean requiring states to count nuclear electricity generated in other states toward compliance with the state's renewable power standard.

230. Of course, a nuclear accident could harm residents in a neighboring state just as a coal-fired facility across the border could harm neighboring states' air quality or a wind farm could harm migratory birds. States have a legitimate *interest* in their neighbor states' environmental policies, but that does not give them *authority* to regulate with the aim of changing those policies. The contours of state authority over actions in neighboring states are set by the interaction of preexisting state and federal laws. For example, state regulation of nuclear power plants based on radiological safety is preempted by the Atomic Energy Act. *See* Entergy Nuclear Vt. Yankee, LLC v. Shumlin, 733 F.3d 393, 422 (1st Cir. 2013). State common law nuisance actions against industrial facilities in neighboring states are preempted by the Clean Water Act. *See* Int'l Paper Co. v. Ouellette, 479 U.S. 481, 500 (1987). States should not be allowed to leverage their energy policies to punish energy sources that they are disabled from regulating.

231. This proposal is consistent with that of other scholars who have suggested that FERC should use its authority to decarbonize the electricity sector. STEVEN WEISSMAN & ROMANY WEBB, ADDRESSING CLIMATE CHANGE WITHOUT LEGISLATION, VOLUME 2: FERC (July 2014), http://www.law.berkeley.edu/files/ccelp/FERC_Report_FINAL.pdf.

B. Imported Fuel

Regulation of imported fuel raises the same issues and requires similar solutions. FERC should preempt explicit discrimination, and remedy implicit discrimination, by placing outer boundaries based on the best science available on the climate impact that can be attributed to out-of-state fuels. Thus, the basic structure of California's low-carbon fuel standard should be authorized, but California's discriminatory treatment of out-of-state heavy oil should be preempted,[232] and it should be required to regulate ethanol either nationally or by facility rather than breaking out California fuel for specifically favorable treatment.[233]

Imported fuel, however, presents two additional problems. First, some of the out-of-state emissions that comprise a fuel's carbon intensity are the emissions required to transport the fuel and its components in interstate commerce.[234] Attaching a penalty to movement in interstate commerce is the archetypal violation of the dormant Commerce Clause, so this portion of carbon intensity scores should be preempted. It is one thing for a state to even-handedly regulate production emissions across the country; it is an entirely different matter to impose a virtual tax on all transport across the country. States should not be allowed to adopt regulations *designed* to slow interstate commerce.

Second, worldwide supply chains mean that much of the petroleum production regulated by a low-carbon fuel standard is foreign. Thus, when states regulate imported fuels based on how they were produced states are regulating emissions in other countries, setting U.S. trade policy, and are likely violating international trade law.[235] States should not be allowed to "embroil the National Government" in trade disputes.[236] Instead, FERC should preempt state regulation of imported fuels from other countries.[237]

232. Rocky Mountain Farmers Union v. Goldstene, No. CV-F-09-2234 LJO DLB, slip op. at *17–21 (E.D. Cal. Dec. 29, 2011) (order granting summary adjudication motion for National Petrochemical & Refiners Ass'n).

233. Rocky Mountain Farmers Union v. Goldstene, 843 F. Supp. 2d 1071, 1086–87 (E.D. Cal. 2011).

234. *Id.* at 1088.

235. Generally nations may not attach conditions to domestic sales that attempt to control the "process and production methods" of their trading partners. General Agreement on Tariffs and Trade art. I, Oct. 30, 1947, 61 Stat. A-11, 55 U.N.T.S. 194. For instance, in one important case, the World Trade Organization appellate body held that the U.S. could not prohibit the importation of shrimp from countries that did not take steps to prevent turtles from being endangered by shrimp fishing. Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, WT/DS58/AB/R (Oct. 12, 1998); *see also* Panel Report, *United States—Restrictions on Imports of Tuna*, DS21/R-39S/155 (Sept. 3, 1991) (rejecting U.S. restrictions on tuna imports from nations that did not adequately protect dolphins from drowning by tuna fishermen); Wu & Salzman, *supra* note 136, at 404–05. For more on the overlap between the dormant Commerce Clause and international trade law, see Daniel A. Farber & Robert E. Hudec, *Free Trade and the Regulatory State: A GATT's-Eye View of the Dormant Commerce Clause*, 47 VAND. L. REV. 1401 (1994).

236. Crosby v. Nat'l Foreign Trade Council, 530 U.S. 363, 383 (2000) (striking down Massachusetts limitation on imports from Burma).

237. Canada has already complained that California's low-carbon fuel standard violates trade law. Scott Haggett, *New California Fuel Rule May Violate NAFTA: Lawyer*, REUTERS (Apr. 24, 2009), http://www.reuters.com/article/2009/04/25/us-fuels-trade-

But what about foreign fuels that would be *favored* by a low-carbon fuel standard because they are produced by low-carbon methods abroad?[238] FERC should ensure that these sources are given the opportunity to opt in to state standards, which would allow states to encourage imports of foreign fuels that they believe to be beneficial to the environment.

C. *Exported Fuel and Energy Supply Chains*

FERC will necessarily and appropriately have less power to supervise state regulation of fossil fuel export and cross-state shipments of energy products.[239] Fossil fuels and the kinds of machinery used in the energy industry generally will have at least some potential impact on the state environment.[240] As a result, states have authority to control shipments of these products to avoid these impacts. But FERC can nevertheless issue guidance to ward off abuses of that legitimate state authority.

First, FERC should make clear that state environmental assessments may not focus on out-of-state environmental impacts unless (1) it is done by agreement with the other state or (2) it has adopted safeguards to ensure an even-handed consideration of climate impacts in all state decisions. There is every temptation to attach a strict climate test to projects enabling out-of-state fuel industries while ignoring emissions associated with in-state industry.[241] This limitation would provide room for a limited consideration of the climate impact of state decisions without threatening retaliation and Balkanization.

Second, while affording wide latitude to state regulation of local impacts, FERC should preempt state regulations that are obviously aimed at disrupting industries in other states. For example, FERC should carefully scrutinize blanket prohibitions on export facilities and oil pipelines. The Energy Policy Act of 2005's[242] treatment of state transmission siting

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idUSTRE53O0NO20090425 (reporting complaints from Canadian trade officials and the former head of the Canadian Bar Association that "California's new low-carbon fuel rules may be a violation of NAFTA and World Trade Organization provisions").

238. *See* Rocky Mountain Farmers Union v. Corey, 730 F.3d 1070, 1084 (9th Cir. 2013).

239. Regan, *supra* note 170, at 1258 (noting greater latitude for regulation of state exports).

240. Environmental groups have been wise to focus on these local impacts, such as coal dust, *Sierra Club v. BNSF Railway Co.*, No. 1:13-cv-00272-LRS, 2014 WL 53309, at *3 (E.D. Wash. Jan. 2, 2014), spill risk, Shaffer, *supra* note 118, and blowing petroleum coke, Sfondeles, *supra* note 123.

241. *Compare Remarks by the President on Climate Change*, WHITEHOUSE.GOV (June 25, 2013), http://www.whitehouse.gov/the-press-office/2013/06/25/remarks-president-climate-change (stating that Keystone XL crude pipeline would not be approved if it would "significantly exacerbate the problem of carbon pollution"), *with* MICHAEL J. WALSH, NATIONWIDE PERMIT 12 (2012), *available at* http://www.usace.army.mil/Portals/2/docs/civilworks/nwp/2012/NWP_12_2012.pdf (environmental analysis that accompanies domestic crude pipelines makes no mention of climate change); *see also* Sierra Club v. U.S. Army Corps of Eng'rs, 990 F. Supp. 2d 9, 26 & n.13 (D.D.C. 2013) (denying motion for preliminary injunction against domestic crude oil pipeline because it, unlike Keystone XL, "is an entirely *domestic* pipeline").

242. 15 U.S.C. § 717b(e)(1) (2012) (as amended by the Energy Policy Act of 2005, Pub. L. No. 109-58, 119 Stat. 594 (2005)).

authority may be a good model for FERC's authority: respecting the principle of cooperative federalism, FERC should preempt state siting authority over crude pipelines if, and only if, a permit is being unreasonably delayed.[243]

CONCLUSION

U.S. energy policy is at a turning point. Imminent decisions by companies and regulators will determine U.S. energy policy for decades to come. State experiments with innovative energy policies play a crucial role in determining what policies will help the country rise to this challenge. But the riddle that states are being asked to solve—climate regulation—is a global problem that plays out over increasingly integrated national and international energy markets. State energy policy experiments are also fertile ground for protectionist measures that would at best forfeit the efficiency and reliability benefits of integrated energy markets, and at worst, could ignite state-to-state and even international trade wars. Congress should preserve the benefits of state experimentation, while protecting free trade in energy markets, by authorizing the Federal Energy Regulatory Commission to supervise state regulation of energy production in other states.

243. Davis, *supra* note 223, at 440–41.